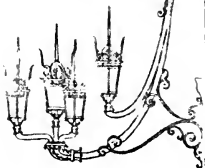




BOSTON
PUBLIC
LIBRARY

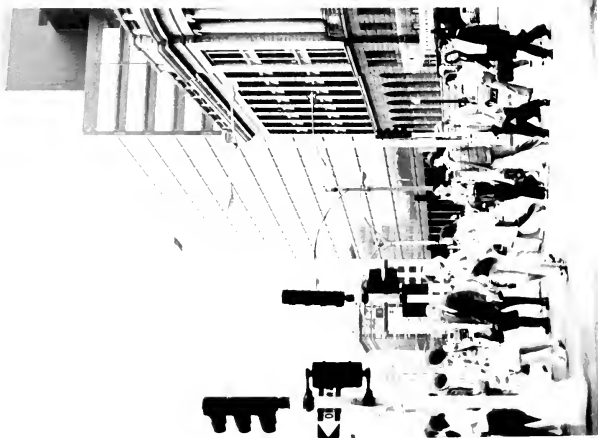
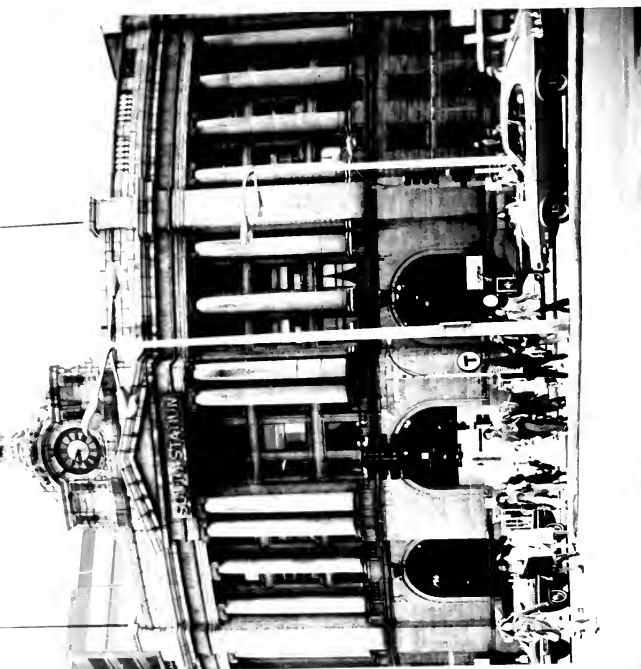


Final Application of

Boston Redevelopment Authority
for Planning and Preservation
Funding for South Station Intermodal
Transportation Terminal
Boston, Mass.



South Station
BLGR
1975

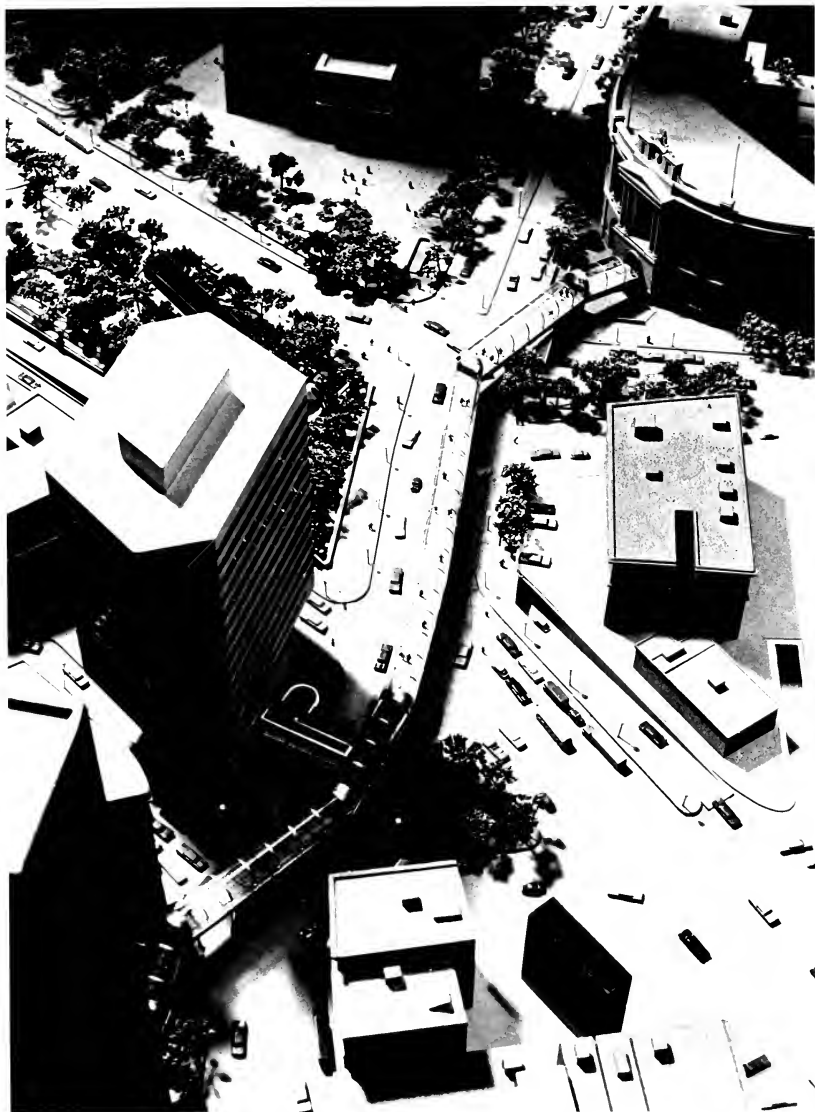




Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300



Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300

DEC 23 1975

Mr. Asaph H. Hall
Deputy Administrator
Federal Railroad Administration
Department of Transportation
400 7th Street, S.W.
Washington, D.C. 20590

Re: Final Application for Planning and
Preservation Funding Assistance
for the South Station Intermodal
Transportation Terminal - Boston,
Massachusetts

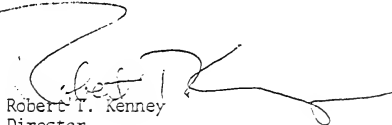
Dear Mr. Hall:

Enclosed please find an original and ten (10) copies of the Final Application for Planning and Preservation Funding Assistance for the South Station Intermodal Transportation Terminal in accordance with Section 15 of the AMTRAK Improvement Act of 1974 and, more particularly, Sections 256.11 and 256.13 of Title 49, Code of Federal Regulations.

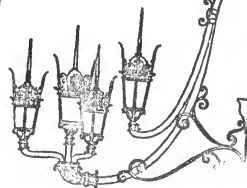
As outlined in our Preliminary Application, we are prepared to proceed with the preparation of final design and construction plans in 1976 and anticipate implementation of those plans over a three-year construction period. It is our objective to convert the existing South Station Rail Passenger Terminal into an Intermodal Transportation Terminal which will provide an attractive, efficient and functional facility for the joint use of various modes of transportation.

We are anxious to move forward with this much-needed and desired program and trust that you will process and approve our application accordingly.

Sincerely,


Robert T. Kenney
Director

**BOSTON
PUBLIC
LIBRARY**





BOSTON REDEVELOPMENT AUTHORITY

FINAL APPLICATION FOR PLANNING AND PRESERVATION FUNDS

256.11(B)

- (1) Boston Redevelopment Authority
City Hall
One City Hall Square
Boston, MA 02201
- (2) Robert T. Kerney, Director
Boston Redevelopment Authority
City Hall
One City Hall Square
Boston, MA 02201
- (3) Boston Redevelopment Authority.
The Authority, as present owner of the property, will play the vital role in coordinating all planning, design and development phases with the various users, participants, and funding agencies. The Authority is planning to continue its responsibility for ownership and management of the facility during and after construction.

Other Agencies:

City of Boston
Department of Transportation, Commonwealth of Massachusetts
Massachusetts Bay Transportation Authority
Massachusetts Historical Commission
Department of Public Works, Commonwealth of Massachusetts
Department of Housing and Urban Development
Urban Mass Transportation Administration
Federal Highway Administration
AMTRAK
Penn Central
Federal Rail Administration
Department of Transportation
Office of Northeast Corridor Development
Greyhound Lines, Inc.
Continental Trailways

The above-listed other agencies and companies have and will continue to participate in the planning and design of the space program for the Intermodal Terminal. We are hopeful that development funds will be obtained from some of the agencies and that others will enter into leasing or sale with the Boston Redevelopment Authority for occupancy in the facility upon its completion.

- (4) Since the mid 1960's it has been recognized that a convenient and efficient interchange for travelers between intercity travel modes and local distribution services at South Station is both desirable and feasible. Among the many benefits accruing to the project area:
- (1) accommodation of projected significant increase in intercity rail services and modest increase in commuter rail service;
 - (2) major improvements in railroad ticketing, baggage handling, and waiting space;
 - (3) significant upgrading of platforms, roadbeds, switching, and signaling facilities;
 - (4) consolidation of rail, intercity bus, and commuter bus facilities in one location;
 - (5) parking to serve rail and bus facilities with direct connections to major arterials, and corresponding reduction in parking spaces served by local streets;
 - (6) enhancement of local public transportation through improved modal transfer;
 - (7) enhanced modal interchange between intercity services, with coordinated baggage transfer;
 - (8) abbreviated intercity bus travel times on account of direct connections with major arterials, and reduced congestion and pollution of local streets;
 - (9) provision of off-street taxi, limousine, and automobile pick-up, drop-off, and short-term parking functions;
 - (10) improved facilities for bus package-express functions;
 - (11) rehabilitation of the historically-significant South Station headhouse for passenger services, exhibit space and offices;

- (12) improved interior environment for better orientation as a major entry to the downtown area; and,
 - (13) stimulus to further development and rehabilitation of a rapidly changing area of the downtown.
- (5) The project for the South Union Station began in 1896 with the incorporation of the Boston Terminal Company, which was composed of the Boston and Albany Railroad Company, the New England Railroad Company, the Boston and Providence Railroad Corporation, the Old Colony Railroad Company and the New York, New Haven and Hartford Railroad Company. In an era of railroad consolidation, it was built as a combined terminal facility on ground formerly occupied by the New England Station (1880), which was removed to make way for the new station. (The New England Station was preceded by the Boston, Hartford and Erie Station on the same site in 1871). The December dedication was followed immediately by scheduled runs on January 1, 1899.

The architect for South Station was the firm of Shepley, Ruten and Coolidge who were the successors of H. H. Richardson. The builders, Norcross Brothers of Worcester, had also been employed at most Richardson projects across New England. Despite Richardson's enormous influence of both firms, South Station reflects the burgeoning popularity of the Neoclassical Revival style at the turn of the century. A forerunner of this trend is the 1883 Boston Public Library, but the major impetus to classical forms came with the 1893 Chicago World's Fair. South Station represents a relatively early example of the Neoclassical Revival in railway architecture, pre-dating both Grand Central and Penn Central Terminals in New York City.

South Station was built as a "double-decker" station made up of 28 tracks with trains arriving on two levels - the upper or main floor for long-range travel and a loop track arrangement on the lower floor for subway and electric service to the suburbs. The concourse, initially open but later enclosed, was 620 feet in length and 150 feet in width, covered by shed roof (now demolished) larger than any yet built in the tri-partite truss and cantilevered method.

The curved portion of the station, the headhouse, is built of Stony Creek granite. When it was built, South Station was the largest and busiest passenger station in the United States and remained so for years. For example, in the year ending June 30, 1916, South Station handled 38 million passengers, about 16 million more than Grand Central Station in New York.

At the present time, ten tracks are operational for commuter, corridor, and long-haul service. The passenger terminal is currently being improved as a temporary measure with new lighting, heating, cleaning, painting, repair office damage, and construction of new offices, ticket, baggage and commissary areas. A temporary bus terminal has recently been completed on the site of the former REA Building, in a fashion that will avoid future staging problems when the intermodal terminal is built. The MBTA Red

Line Rapid Transit station is adjacent to the passenger terminal with kiosks in front of South Station.

The proposed improvements will consolidate and expand passenger services located at South Station and presently elsewhere in downtown Boston. (See attached plans, Exhibit A).

- 1) Railroad service: the envelope will be expanded to include 12 tracks with new high-level platforms over 1200 feet long and 18 feet wide, new switching, and new signal systems. The new concourse will include the elements listed in the performance standards for Corridor/rail A level stations compiled by Northeast Corridor Office, FRA, under Task 12.
- 2) Bus service: the intermodal center will include both intercity and commuter bus facilities with baggage, ticket, waiting rooms, and package express functions designed to meet the needs of the users. Exclusive bus lanes will connect from the Mass Pike and to the Southeast Expressway and Mass Pike.
- 3) Parking: approximately 2,000 long-term garage spaces will be provided for commuters and users of the transportation facilities. An additional 300 spaces for short-term parking will accommodate the pick-up, drop-off, and package express functions. Access to the garage is located at Kneeland Street within one block from the Turnpike and Expressway exits, and at Essex Street serving local traffic.

Attached as Exhibit B is a copy of the South Station description on file with the National Register.

- (6) It is estimated that the total allowable project cost for the development of plans for the conversion of the South Station Railroad Passenger Terminal into an Intermodal Passenger Terminal will be approximately \$10 million and that preparation of plans can be completed within two (2) years from the date of this application. This planning cost estimate is predicated on 15% of \$63 million, which represents the estimated allowable project cost of the total \$105 million development. The project development estimate includes the following general elements:

.Site Acquisition	\$ 9 million
.Rail facilities (intercity and commuter)	24.3million
.Commuter bus facility	2.7million
.Intericty bus facility	11.8million
.Parking garage and ramps	23.9million
.Station renovation	15.0million
.Other site improvements	7.0million
.Transit improvements	4.0million
.Ramps to Expressway and Turnpike	7.0million
	<u>\$104.7million</u>

The planning funds requested will be required to undertake detailed studies to: (1) assess the feasibility and need of an Intermodal Passenger Terminal at the existing South Station Rail Passenger Terminal; (2) develop a fiscal plan for the construction thereof; (3) a plan for the implementation of leasing and operating the completed facility; (4) determine the relationship of the proposed project to other transportation priorities in the area; and (5) to evaluate alternate means of providing needed intermodal passenger services within the community.

The planning funds will also be required to meet the costs of preparing preliminary architectural and engineering design documents for the project. These documents will include: (1) plans, sections and sketches illustrating the functional and preservation aspects; (2) assessment of the condition of existing structural and utilities systems and requirements for their improvements; (3) outline specifications and preliminary estimates of project costs; and (4) an environmental impact review and analysis.

- (7) It is requested that \$10 million in planning funds be provided to the applicant in order to carry out the planning activities described in Section (6) above.
- (8) The applicant proposes to develop the planning and construction of the Intermodal Terminal with the financial assistance and participation of a number of Federal funding programs. It is our intention to establish a Unified Work and Financing Program (see Exhibits C & D) which will include, but not be limited to, the following federal programs:
- (a) Northeast Corridor Rail Improvements Program
It is contemplated that funds will be made available from this program to finance the cost of the new intercity rail improvements and related activities.
 - (b) Federal Highway Administration
It is contemplated that funds will be available from this program to finance the cost of the direct ramp connections into the Intermodal Terminal.
 - (c) Urban Mass Transportation Administration
It is contemplated that funds will be made available from this program to finance the cost of various Mass transportation improvements including commuter rail and bus facilities.

The above list of proposed funding programs is preliminary at this stage until more detailed planning, design, and engineering plans can be completed. In terms of a reference to all requirements pertaining to such Federal Programs, it is expected that the

applicant will comply with all procedural aspects required for funding from the various federal agencies.

Attached as Exhibit E is a copy of an Inter-agency Agreement entered into by the Department of Housing and Urban Development, Urban Mass Transportation Administration, Federal Highway Administration, and the Federal Railroad Administration wherein the various agencies agree to work together in the preparation of plans and an environmental analysis for the South Station Intermodal Terminal.

- (9) The total project cost for the development of the project is estimated at \$105 million. The planning, design and engineering activities described in Section (6) above are estimated to cost 15% or \$16 million. Pursuant to the definition of allowable project costs as set forth in Section 256.3(c) and 256.7(d) of the Regulations, the applicant is applying for 60% (\$10 million) of the total planning funds necessary to carry out the program. The applicant is prepared to furnish the remaining 40% (\$6.0 million) of the planning funds through a variety of sources such as City of Boston/BRA funding, issuance of BRA bonds pursuant to State Legislation recently enacted, and participation from other local and State agencies participating in the project.
- (10) The applicant has coordinated its planning for the project with the Metropolitan Area Planning organization which is the agency designated by the Governor of our Commonwealth to carry out the unified work planning program for the area.
- (11) As evidence that the applicant has established fiscal controls and fund accounting procedures sufficient to assure proper disbursement of and accounting for funds, the Applicant cites its participation in the Urban Renewal Program, established by the Federal Housing Act of 1949. As an Urban Renewal Program grantee, the applicant has been required to establish accounting procedures satisfying the grantor, the Department of Housing and Urban Development. These procedures and practices have been subject to periodic audit, including, but not limited to an audit of our procedures for allocating both direct and indirect costs and for financial reporting. No findings pertaining to our fiscal control or fund accounting procedures under this program are outstanding.
- As further assurance that satisfactory fiscal control and fund accounting will be utilized in the disbursement of funds under the proposed project, the applicant has adopted the enclosed assurance that it will comply with the regulations, policies, guidelines and requirements of Federal Management Circulars 74-4 and 74-7, as they relate to the application, acceptance and use of Federal funds and that it will comply with procedures established by the Federal Railroad Administrator.


(12) The applicant hereby certifies that it has notified the appropriate State and Regional agencies and clearing houses and comments have been solicited in accordance with OMB Circular A-95, Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966, and Section 401 of the Intergovernmental Cooperation Act of 1968.

(13) The applicant hereby assures and certifies that he will comply with the regulations, policies, guidelines and requirements of Federal Management Circulars 74-4 and 74-7, as they relate to the application, acceptance and use of Federal funds for this federally-assisted program and with such fiscal control and fund accounting requirements as the Federal Railroad Administrator may establish.

The applicant also gives assurance and certifies with respect to the grant that I will comply with:

- (a) Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d et. seq. and all requirements imposed by Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation;
- (b) Title II and Title III of the Uniform Relocation Assistance and Real Property Acquisitions Act of 1970, 42 U.S.C. 4001 et seq. and all requirements imposed by Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 25, Relocation Assistance and Land Acquisition under Federal and Federally-Assisted Programs;
- (c) 42 U.S.C. 4151 et. seq., with regard to Federal policies ensuring that physically handicapped persons will have ready access to, and use of, public buildings;
- (d) The Rehabilitation Act of 1973, 87 Stat. 394, 29 U.S.C. 704, with regard to nondiscrimination under Federal grants;
- (e) The Hatch Act, 5 U.S.C. 1501 et. seq. which limits the political activities of employees; and
- (f) Where applicable, the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. 1221 et. seq., and the implementing regulations promulgated thereunder, 31 CFR Part 51; and

Legal Certification: As counsel for the applicant and attorney-at-law admitted to practice in the State in which the applicant is located, I certify that the facts and representatives contained in the Assurance above to be true and in accordance with State and local law.


Signature of Applicant's
Counsel

CHARLES J. SPELEOTIS
Type or Print Name of
Applicant's Counsel

Dec 23, 1975
Date

56.11(C)(5)

Attached as Exhibit F is a Preliminary Summary of Space Needs, a description and documentation of existing or potential markets for interline intermodal service; and proposed changes in existing services which must be provided to achieve this potential.

56.11(E)

(1) and (2). The attached chart, Task Flow, Scheme A (Exhibit G) describes the planning, design, review, bidding, and construction schedule which is underway on the South Station Intermodal Transportation Center project. The schedule indicates that planning activities will be completed within two years following final approval of this application. It is also indicated that the plans will be implemented within three years after the date of completion.

The following addenda represent recent adjustments to the schedule:

- (1) East Wing of headhouse: it is no longer planned that the east wing will be demolished. Instead it will be renovated and integrated with the design of the Intermodal Center.
- (2) Permanent rails: the construction of new rails, platforms, and signals will be simultaneous with construction of the garage and bus facility, i.e., April 1977 to January 1979, rather than January 1978 to July 1979.
- (3) Interceptor Sewer: although construction documents are already completed, construction will be postponed to coincide with new rail improvements.
- (4) Summer Street: construction documents have been completed and work will begin in April 1976 and will be finished by March 1977.

Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300

DEC 24 1975

Mr. Frank Keefe, Director
Office of State Planning
One Ashburton Place
Boston, MA

Attention: Peter Schneider

Dear Mr. Keefe:

On December 12, I notified you of our intention to submit an application for funding of the South Station Project.

Enclosed is a copy of the final application for Planning and Preservation Funding Assistance for the South Station Intermodal Transportation Terminal. The application requests \$10 million in funds from the Federal Railroad Administration of the Department of Transportation.

As outlined in the Preliminary Application, these funds will be used to proceed with the preparation of final design and construction plans in 1976 and to carry out rehabilitation and preservation work on portions of the historic head house.

The total project under the unified funding program calls for a \$104.7 million project with funding from UMTA, FHWA, Urban Systems, Federal Railroad Administration, and the Boston Redevelopment Authority.

Because of the complexity of this development proposal, your staff may wish to discuss this application further with Joseph Berlandi, Director of Downtown Development.

Sincerely,

Robert T. Kenney
Director

Enclosure

Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300

DEC 24 1975

Mr. Richard M. Doherty, Executive Director
Metropolitan Area Planning Council
44 School Street
Boston, MA 02108

Dear Mr. Doherty:

On December 12, I notified you of our intention to submit an application for funding of the South Station Project.

Enclosed is a copy of the final application for Planning and Preservation Funding Assistance for the South Station Intermodal Transportation Terminal. The application requests \$10 million in funds from the Federal Railroad Administration of the Department of Transportation.

As outlined in the Preliminary Application, these funds will be used to proceed with the preparation of final design and construction plans in 1976 and to carry out rehabilitation and preservation work on portions of the historic head house.

The total project under the unified funding program calls for a \$104.7 million project with funding from UMTA, FHWA, Urban Systems, Federal Railroad Administration, and the Boston Redevelopment Authority.

Because of the complexity of this development proposal, your staff may wish to discuss this application further with Joseph Berlandi, Director of Downtown Development.

Sincerely,

Robert T. Kenney
Director

Enclosure





FREDERICK P. SALVUCCI
SECRETARY

The Commonwealth of Massachusetts
Executive Office of Transportation & Construction
One Ashburton Place
Boston, Massachusetts 02108

December 19, 1975

Robert T. Kenney, Director
Boston Redevelopment Authority
City Hall
One City Hall Square
Boston, Massachusetts 02201

Dear Mr. Kenney:

RE: PROPOSED SOUTH STATION INTERMODAL
TERMINAL

As you are now proceeding with an application to the Federal Railroad Administration for planning funds for the proposed South Station Intermodal Terminal, I would like, as Chairman of the Metropolitan Planning Organization, to confirm our continuing interest in the undertaking.

All aspects of the proposed facility are consistent with the Transportation Plan and Transit Development Program for the Boston Metropolitan Region. The Terminal will provide better intercity and commuter rail service, a consolidated bus terminal with ease of access from both the major north-south and east-west expressways, enhancement of rapid transit connections and improved parking arrangements within the parking freeze. We are of course concerned with the manner in which all the elements are designed, coordinated and carried forward. Costs and funding are also important, and this letter is not intended as a commitment of funds from us at this time. The environmental issues we expect to be covered in your upcoming Draft EIS which is being done under a Memorandum of Understanding among HUD, UMTA, FHWA and FRA.

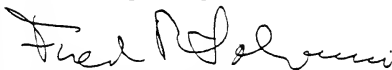
RECEIVED
DEC 26 1975
BOSTON REDEVELOPMENT AUTHORITY
OFFICE OF THE DIRECTOR

Robert T. Kenney, Director (Continued)

Member agencies of MPO have participated in your South Station work thus far. Representatives of MBTA have in particular worked with you on the needs of commuter rail and buses and Red Line transit. The Massachusetts Department of Public Works has dealt with your connecting ramp, expressway and adjacent street proposals. Aspects of the project are included in the Unified Work Program reviewed by the Joint Regional Transportation Committee and have been monitored by our Central Transportation Planning Staff.

In summary, as I recognize what has transpired thus far, I look forward to a cooperative realization of a new Intermodal Terminal at South Station and support your effort to gain planning funds.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Fred Salvucci", written in a cursive style.

Frederic Salvucci
Secretary of Transportation and Construction


CC: R. Kiley
J. Carroll
R. Doherty
J. McCarthy
Mayor Kevin White
J. Wofford

APPENDIX A

C E R T I F I C A T E

Robert T. Kenney certifies that he is the Chief Executive Officer of the Boston Redevelopment Authority; that he is authorized to sign and file with the Federal Railroad Administrator this final application; that he has carefully examined all of the statements contained in the final application relating to Financial Assistance for Planning and Preservation of the South Station Intermodal Transportation Terminal; that he has knowledge of the matters set forth therein and that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

December 23 1975
(D a t e)


(S i g n a t u r e)

Subscribed and sworn to before me the 23 day of December

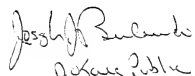

Notary Public
My Commission expires
Oct 9, 1981

EXHIBIT A

00-1-100000

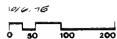
DATE _____

DATA STRIP

LINEA ~~OTRABAY~~

SOUTH STATION TRANSPORTATION TERMINAL

BRA



THE FORTITUDOS COLLABORATIVE INC.
FARMERS, GARDENERS AND DUCKS &
EGGS INC.
PORTAL REDEVELOPMENT AUTHORITY

SITE PLAN



SOUTH STATION TRANSPORTATION TERMINAL

ST-B 1000 / ST-B 1000

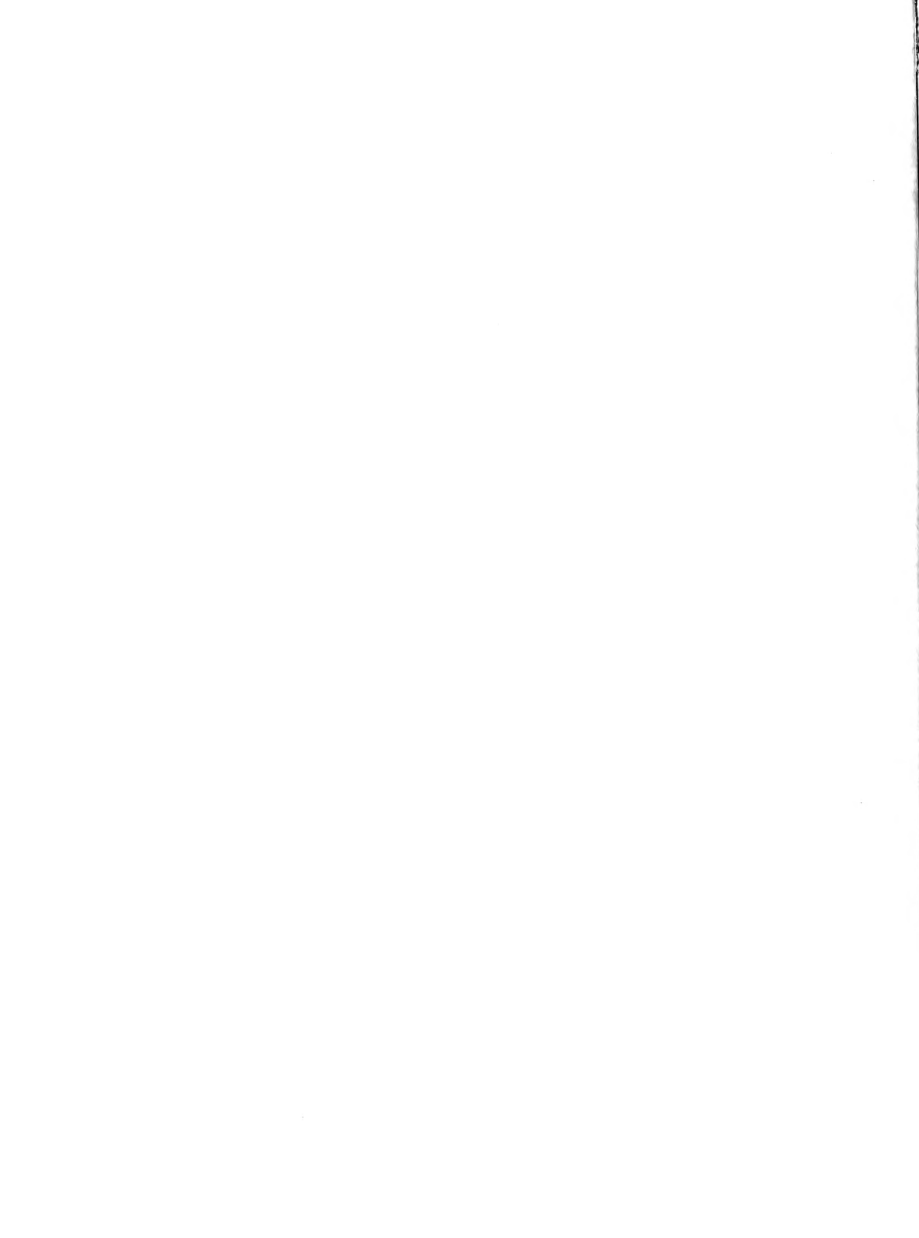
0 50 100 200

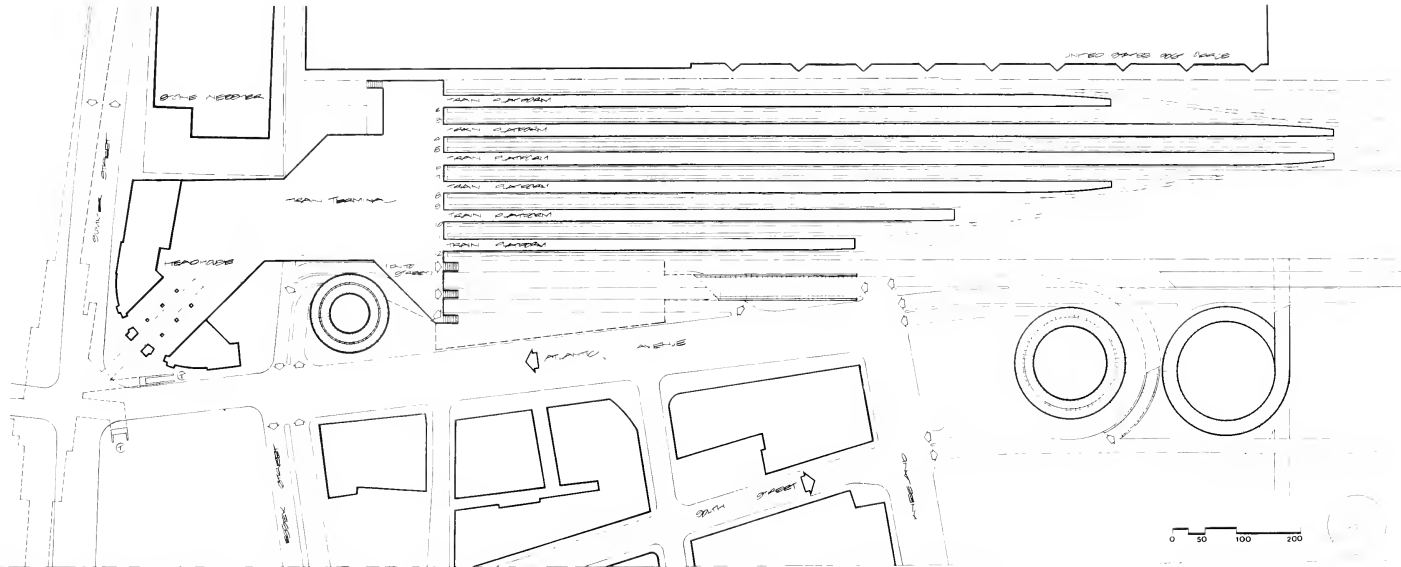
LEVEL 15

THIS PLAN IS A REPRESENTATION OF THE
DESIGN AND CONSTRUCTION OF THE
BUILDING AND ITS INTERIOR
SPACE. IT IS NOT A CONTRACT DOCUMENT.

01/17/15

IBRA





SOUTH STATION TRANSPORTATION TERMINAL

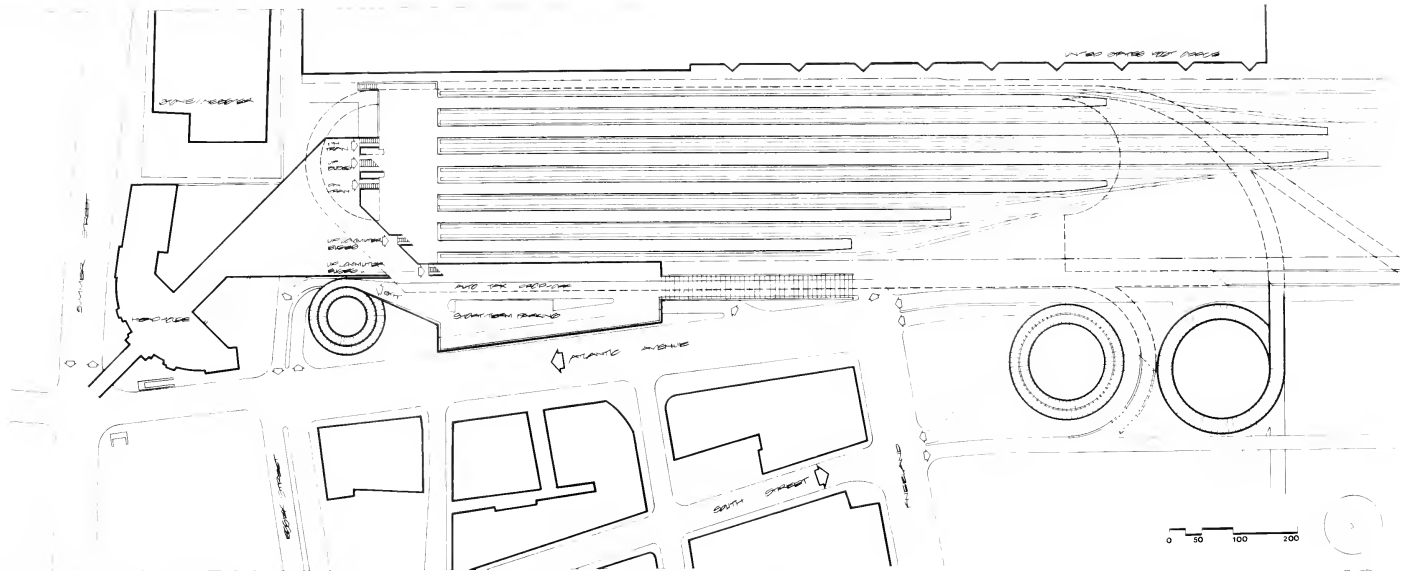
TRAIN TERMINAL

LEVEL 30

TO THE SOUTH STATION
 FROM THE SOUTH STATION
 FROM THE SOUTH STATION
 01/17/15

BRA





SOUTH STATION TRANSPORTATION TERMINAL

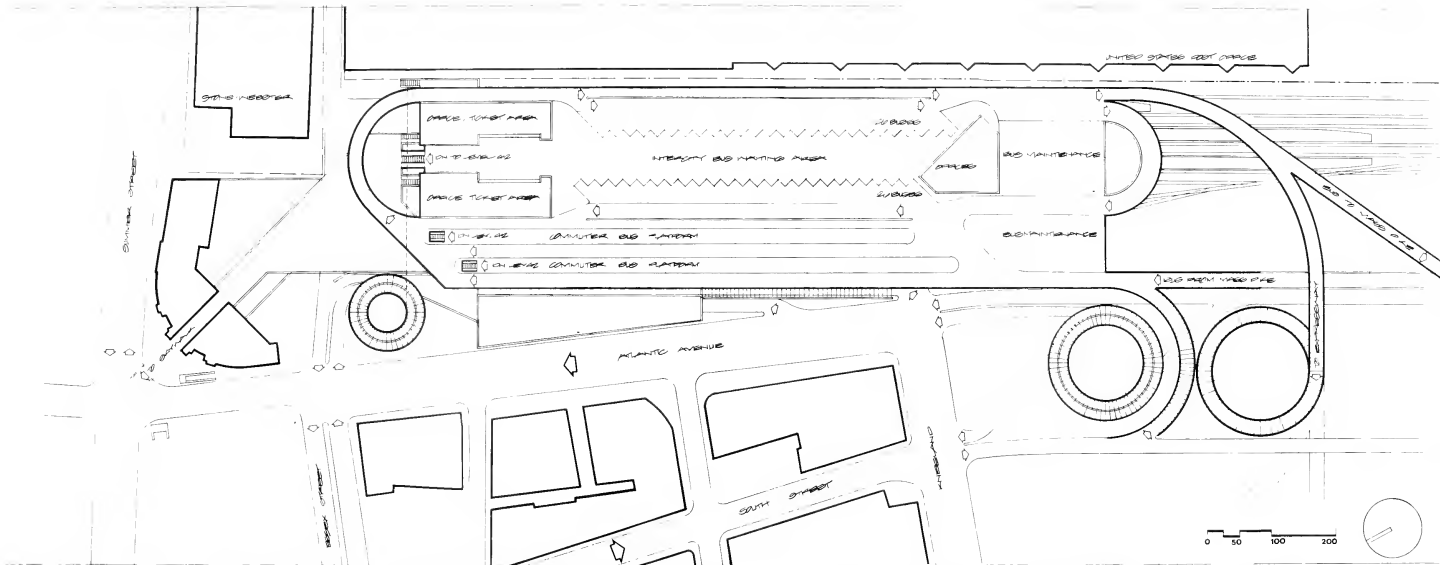
PEDESTRIAN & AUTO DROP-OFF

LEVEL 42

THE ARCHITECTS ASSOCIATES, INC.
ARCHITECTS
200 N. BROAD ST., 10TH FLOOR
BOSTON, MASSACHUSETTS 02108
01/18

BRA





SOUTH STATION TRANSPORTATION TERMINAL

BUS TERMINAL & COMPUTER POOLS

LEVEL 54

THE ARCHITECT COLLABORATIVE INC.
ARCHITECTS, PLANNERS, ENGINEERS
ARCHITECTS, PLANNERS, ENGINEERS
ARCHITECTS, PLANNERS, ENGINEERS
10/1/18

BRA



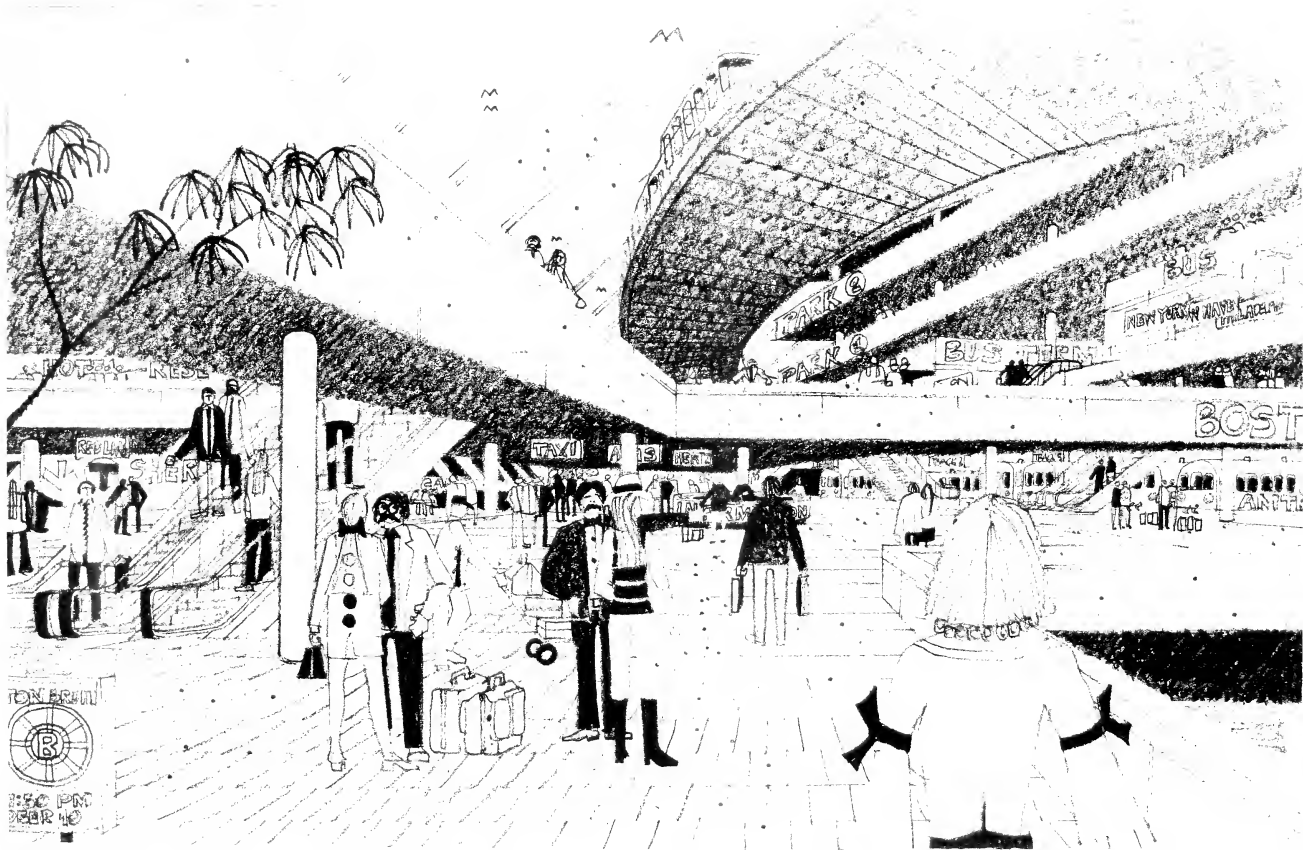




EXHIBIT B

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE:
Massachusetts

COUNTY:
Suffolk

FOR NPS USE ONLY

ENTRY DATE

1. NAME

COMMON:
South Station Headhouse (use for publication)

AND/OR HISTORIC:
South Union Terminal

2. LOCATION

STREET AND NUMBER:
Atlantic Avenue and Summer Street

CITY OR TOWN:
Boston

CONGRESSIONAL DISTRICT:
9th

STATE
Massachusetts

CODE
025

COUNTY:
Suffolk

CODE
025

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District	<input checked="" type="checkbox"/> Public	<input checked="" type="checkbox"/> Occupied	Yes:
<input type="checkbox"/> Site	<input type="checkbox"/> Private	<input type="checkbox"/> Unoccupied	<input checked="" type="checkbox"/> Restricted
<input type="checkbox"/> Object	<input type="checkbox"/> Both	<input type="checkbox"/> Preservation work in progress	<input type="checkbox"/> Unrestricted
	Public Acquisitions: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered		<input type="checkbox"/> No

PRESENT USE (Check One or More as Appropriate)

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input type="checkbox"/> Park	<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Comments
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify)	
<input type="checkbox"/> Educational	<input type="checkbox"/> Military	<input type="checkbox"/> Religious		
<input type="checkbox"/> Entertainment	<input type="checkbox"/> Museum	<input type="checkbox"/> Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME:
Boston Redevelopment Authority

STREET AND NUMBER:
Boston City Hall

CITY OR TOWN:
Boston

STATE:
Massachusetts

CODE
025

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Suffolk County Registry of Deeds

STREET AND NUMBER:
Pemberton Square

CITY OR TOWN:
Boston

STATE:
Massachusetts

CODE
025

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:
Inventory of the Historic Assets of the Commonwealth of Massachusetts

DATE OF SURVEY: 1974

☐ Federal ☒ State ☐ County ☐ Local

DEPOSITORY FOR SURVEY RECORDS:
Massachusetts Historical Commission

STREET AND NUMBER:
40 Beacon Street

CITY OR TOWN:
Boston

STATE:
Massachusetts

CODE
025

SEE INSTRUCTIONS

FOR NPS USE ONLY
ENTRY NUMBER
DATE



NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

COUNTY

Suffolk

FOR NPS USE ONLY

ENTRY NUMBER

DATE

SECTION 7 - DESCRIPTION

(Continuation Sheet)

(Number all entries)

The terminal is a 5 story, symmetrical brick structure. The building has a dominant curved headhouse, faced with granite, which was flanked by tan brick wings along Atlantic Avenue and Summer Street; its elbow-shape plan shielded the immense train shed and track facilities from public view. In elevation, the station is divided visually in two layers, giving a pronounced horizontal emphasis: the 2 lower floors are faced with rough-hewn granite and are separated by a continuous stringcourse from the upper floors, which are unified by smooth masonry vertical members in the Giant Order. (This bisection corresponds functionally to the public uses of the lower floors and to the company offices above; it also reflects the double decker track system with subway and suburban electric systems below the track level used for long distance runs.) A continuous entablature with a balustraded parapet is interrupted at the headhouse by an ornate clockpiece, topped by a monumental eagle, which continues the vertical orientation of the pedimented portico just below.

The headhouse has five symmetrically disposed major bays. Its central bay is framed by full-height piers and has 3 grand round arch entrances. The middle arch and accompanying piers project and support the large portico of paired Ionic columns with a triangular pediment. The lateral parts of this central bay and the next two secondary flanking bays continue the Giant Order colonnade behind which the window wall is recessed. In contrast to the columns, the pair of tertiary bays in the headhouse project slightly and are inset with a triple bank of rectangular windows. This latter pavillion motif was repeated at the termination of the wings which otherwise were long plain blocks. Their fenestration pattern on the lower level repeated the round arch theme set in the headhouse; on the upper tier, full height piers separate vertically-arranged rectangular window pairs.

The terminal complex has undergone considerable change, although the headhouse portion externally remains intact. The metal train shed, a combination of cantilevered arms plus floating middle truss, along with the two story metal covered midway, had to be demolished within 30 years due to deterioration. At the same time, interior alterations were made to the passenger waiting rooms and service areas. A single story extension to the Atlantic Avenue wing was demolished along with the full Atlantic Avenue wing and half of the Summer Street wing (from the terminating pavillion through and including the mid-pavillion).

The terminal is part of the South Station Urban Renewal

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE

Massachusetts

COUNTY

Suffolk

FOR NPS USE ONLY

ENTRY NUMBER

DATE

(Number all entries)

Project. Plans and prior commitments require the demolition of the remaining Summer Street wings leaving the entire headhouse as the primary gateway from the central business district to the new intermodal transportation center to be developed behind the headhouse. Although surface vehicular access ways will penetrate the site at the points of the wings, the lateral vision lines will be re-established by the Atlantic Avenue bus terminal and a new office building located on Summer Street.

B. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- ☐ Pre-Columbian; ☐ 16th Century; ☐ 18th Century; ☐ 20th Century
☐ 15th Century; ☐ 17th Century; ☒ 19th Century

SPECIFIC DATE(S) (If Applicable and Known) 1896-1899

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|--|---------------------------------------|--|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Phi. | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | <input type="checkbox"/> Isotopy | _____ |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Science | _____ |
| <input checked="" type="checkbox"/> Architecture | <input type="checkbox"/> Landscape | <input type="checkbox"/> Sculpture | _____ |
| <input type="checkbox"/> Art | <input type="checkbox"/> Architecture | <input type="checkbox"/> Social/Human- | _____ |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Literature | <input type="checkbox"/> itarian | _____ |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Military | <input type="checkbox"/> Theater | _____ |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Music | <input checked="" type="checkbox"/> Transportation | _____ |

STATEMENT OF SIGNIFICANCE

The project for the South Union Station began in 1896 with the incorporation of the Boston Terminal Company, which was composed of the Boston and Albany Railroad Company, the New England Railroad Company, the Boston and Providence Railroad Corporation, the Old Colony Railroad Company and the New York, New Haven and Hartford Railroad Company, uniting the lines from the south of Boston. The trend toward consolidation gained momentum with the skyrocketing costs of maintaining individual lines. Following the North Station example, the new Boston Terminal Co. demolished the 1880 New England Station at Summer Street and Atlantic Avenue which had itself replaced the Boston, Hartford and Erie depot then only nine years old.

A year of planning preceded the construction of the new terminal and produced several important innovations in station planning and track layout. Two major considerations resulted in a prototypical "double decker" track system. First, the terminal site had size constraints due to the high land costs; second, public pressure demanded subway and electric service at the site for efficiency, economy, and minimal polluting effect. The suburban subway and electric lines were underground on a loop track, while the long distance passenger runs had 28 tracks at street level. (This piggyback system reached its acme several years later at New York's Grand Central.) Construction of the terminal took two years beginning in 1897. Dedicated in late December of 1898, the station opened publicly in January, 1899, and was the largest (and quickly the busiest) passenger station in the country. By 1916, South Station was handling 16 million more passengers than Grand Central Station in New York.

The train shed was distinguished technologically by its wide span, 570 feet in total. The engineer designer, J. Worcester, of the Terminal Company adapted the 1891-94 St. Louis Union Station example of an inverted arch/truss system with 5 segments, by combining a curved truss and cantilever arms to create a vast, open shed of only 3 segments. Unfortunately, the effect of pollutants within the shed seriously weakened the structure and forced its demolition in 1930. Numerous other new mechanical devices (track switches, furnaces, trial electric signal lights) as well as passenger amenities (restaurants, washrooms, travel services, etc.) were included in the station.

SEE INSTRUCTIONS

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
MASSACHUSETTS	
COUNTY	
SUFFOLK	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries) 8. Significance (Cont'd)

In addition to its role in the evolution of station planning, South Station is also significant for its architecture. It was designed by Shepley, Rutan, and Codrington and built by Norcross Brothers, who were contractors for the majority of H. H. Richardson's works and were the owners of multiple quarries that supplied granite for the architects. South Station was Boston's first (and only remaining) monumental public example of the Neo-classical Revival style. Although the firm was Richardson's successor, the major impetus for the station design comes not from his work but from C. B. Atwood's Terminal Station at the 1893 World's Columbian Exposition in Chicago. Active in Chicago during and after the Exposition, the Boston firm produced a considerable Neo-classical and Beaux Arts classical repertoire. South Station, a more restrained, sober and quiet design than their earlier classicizing works, established this trend in later railway terminals, including Pennsylvania Station, New York, and Union Station, Chicago - now both demolished. Boston had firmly rejected the mid-century picturesque station type: the only remnant was the clockpiece, no longer set high on a square tower, but just above the roofline. The clock, long a symbol of the railroad industry's reliance on punctuality and speed, was manufactured by the Edward Howard Clock Company of Roxbury and, later, Waltham. It is the largest and only remaining double, three-legged escapement mechanism in New England.

9. MAJOR BIBLIOGRAPHICAL REFERENCES

1. Alexander, E.P. Down at the Depot, New York: Clarkson Potter, 1970.
2. Boston Herald, September 5, 1897; October 13, 1964.
3. Francis, G.B. The South Terminal Station, Boston, Mass. reprinted from Proceedings, American Society of Engineers, December, 1899.
4. Meeks, C.L.V. The Railroad Station, An Architectural History, New Haven: Yale University Press, 1956.
5. Whitehill, W.H. Boston: A Topographical History, 2nd ed., Cambridge: Belknap Press of Harvard University, 1968.
6. Windsor, J., ed. The Memorial History of Boston, Boston: J.R. Osgood, 1880.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			OR LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES	
CORNER	LATITUDE	LONGITUDE		
	Degrees Minutes Seconds	Degrees Minutes Seconds	Degrees Minutes Seconds	Degrees Minutes Seconds
NW	° ' "	° ' "	42 21 07.294	71 03 20.393
NE	° ' "	° ' "		
SE	° ' "	° ' "		
SW	° ' "	° ' "		

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 0.5

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

11. FORM PREPARED BY

NAME AND TITLE: Elizabeth Amadon, Survey Director by Boston Landmarks Commission	
ORGANIZATION: Massachusetts Historical Commission	DATE: October, 1974
STREET AND NUMBER: 40 Beacon Street	
CITY OR TOWN: Boston	STATE: Massachusetts
	CODE: 025

12. STATE LIAISON OFFICER CERTIFICATION

NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☐ State ☐ Local ☐

Name _____

Title _____

Date _____

I hereby certify that this property is included in the National Register.

Director, Office of Archeology and Historic Preservation

Date _____

ATTEST:

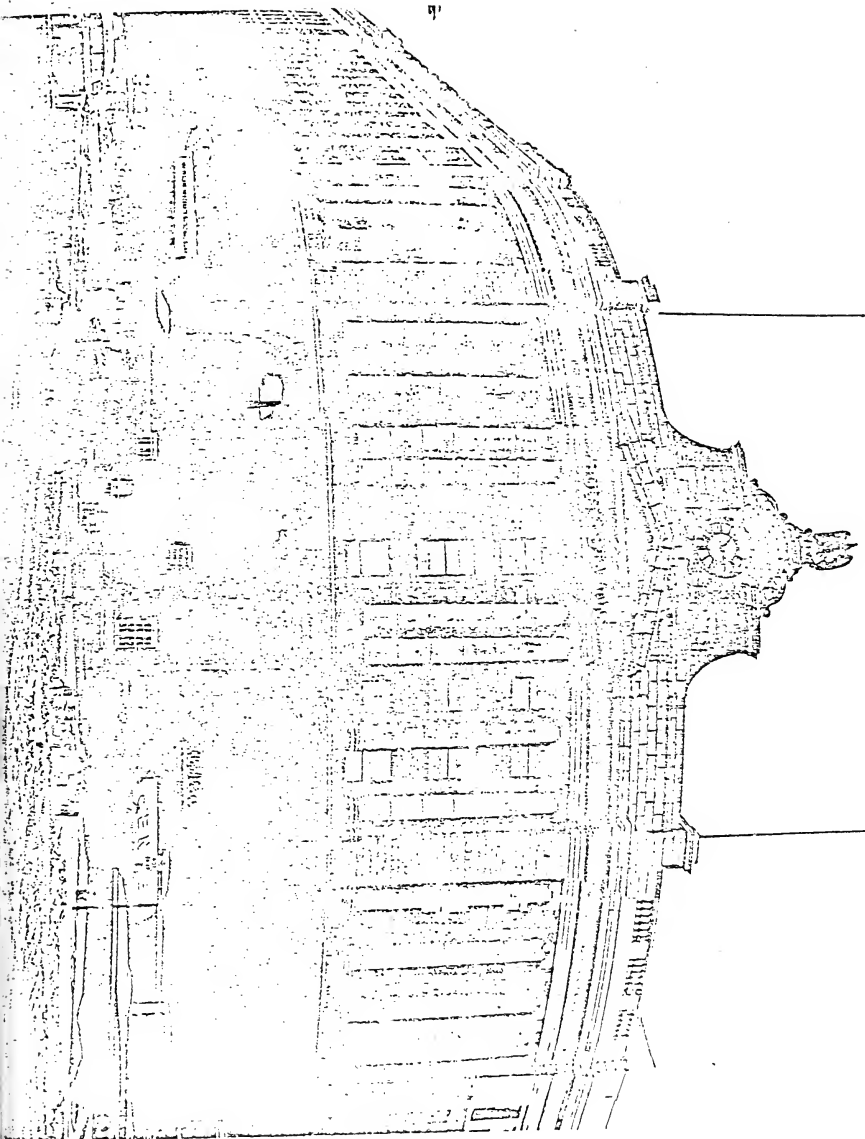
Keeper of The National Register

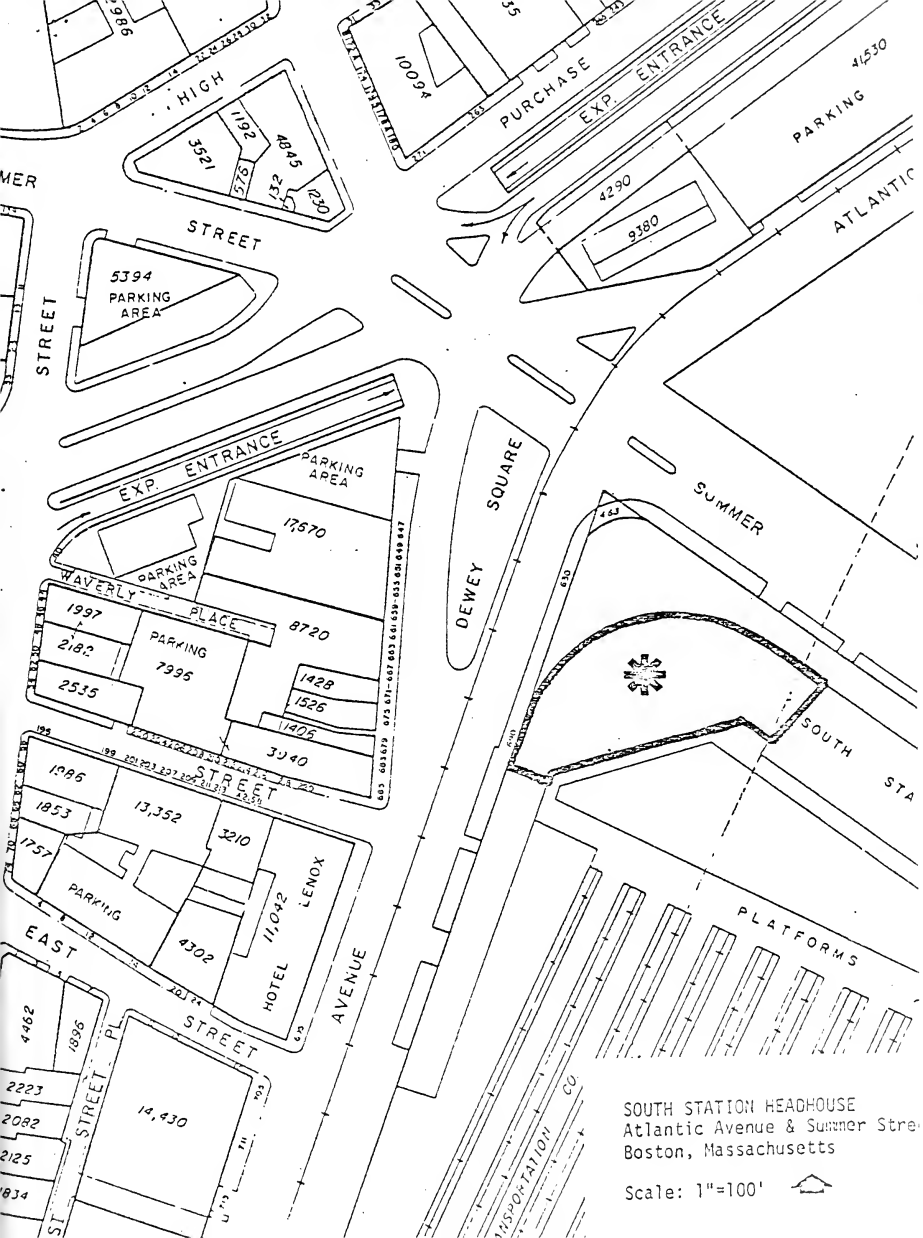
Date _____

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
NATIONAL REGISTER OF HISTORIC PLACES
PROPERTY PHOTOGRAPH FORM
(Type all entries - attach to or enclose with photograph)

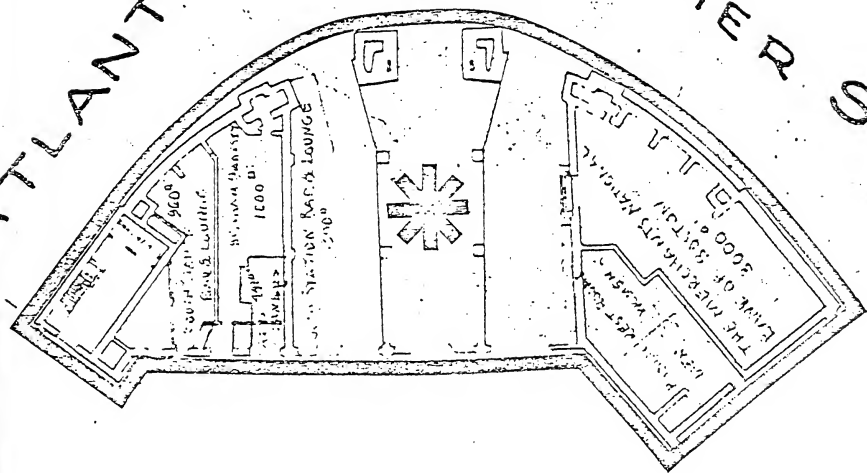
1. NAME		
COMMON	AND/OR HISTORIC	NUMERIC CODE (Assigned by NPS)
South Station Headhouse	South Union Terminal	
2. LOCATION		
STATE	COUNTY	TOWN
Massachusetts	Suffolk	Boston
STREET AND NUMBER		
Atlantic Avenue and Summer Street		
3. PHOTO REFERENCE		
PHOTO CREDIT	DATE	NEGATIVE FILED AT
Boston Redevelopment Authority	1971	Boston Redevelopment Authority City Hall, Boston, MA
4. IDENTIFICATION		
DESCRIBE VIEW, DIRECTION, ETC.		

View of Headhouse from Dewey Square looking south-easterly with Summer Street wing at the left.





ATLANTIC AVE. SUMMER ST.



SOUTH STATION HEADHOUSE
Atlantic Avenue & Summer Street
Boston, Massachusetts

Scale: 1" = 40'



BOSTON SOUTH QUADRANGLE
MASSACHUSETTS
7.5 MINUTE SERIES (TOPOGRAPHIC)

68EB IV NW
(LYNN)

42°22'30"



EXHIBIT C

PROPOSED PLANNING, CONSTRUCTION, AND FINANCING PROGRAM

<u>Project Element</u>	<u>Estimated Cost</u>	<u>Proposed Source of Funds</u>	<u>Planning & Design</u>	<u>Construction Completed</u>
1) <u>Site Acquisition</u>	\$ 9,000,000	BRA	Completed	Completed
2) <u>Rail Improvements</u>				
a) Commuter	12,400,000	UMTA/MBTA	1975-Aug. 1976	Aug. 1976-1979
b) Intercity	*11,900,000 *(includes relocation of interceptor, Fort Point Channel culvert, etc.)	Northeast Corridor/F.R.A.	1975 - Aug. 1976	Aug. 1976 - 1979
3) <u>Bus Facilities</u>				
a) Commuter	2,700,000	UMTA/MBTA	1975 - 1976	1977 - 1979
b) Intercity	11,800,000	Private/F.R.A. Intermodal	1975 - 1976	1977 - 1979
c) Ramps and drums	7,000,000	F.H.W.A. /Interstate	1976	1977 - 1979
4) <u>Transit Improvements</u>				
a) Station Modernization	3,000,000	UMTA/MBTA	1976	1977 - 1979
b) Other MBTA improvements	1,000,000	UMTA/MBTA	1976	1977 - 1979
5) <u>Parking Facility</u>				
a) Garage	16,800,000	City of Boston	1976	1977 - 1979
b) Ramps and drums	7,100,000	City of Boston	1976	1977 - 1979
6) <u>Renovation to Headhouse</u>	5,000,000	BRA/F.R.A.	1976	1976 - 1977
7) <u>New Construction to Headhouse</u>	10,000,000	BRA/F.R.A.	1976	1977 - 1979
8) <u>Summer Street Relocation</u>	2,000,000	Urban Systems	1975	1976
9) <u>Other Public Improvements</u>	5,000,000	BRA	1976	1977 - 1978
	<u>\$104,700,000</u>			

EXHIBIT D

PROPOSED SCHEDULE OF FUNDING SOURCES

<u>FUNDING SOURCES</u>	<u>TOTAL</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
I. <u>MBTA (MBTA)</u>					
Commuter Rail	12,400,000	1,900,000	3,500,000	3,500,000	3,500,000
Commuter Bus	2,700,000	300,000	800,000	800,000	800,000
Station Modernization	3,000,000	300,000	900,000	900,000	900,000
Other MBTA Improvements	1,000,000	100,000	300,000	300,000	300,000
	<u>\$19,000,000</u>	<u>2,600,000</u>	<u>5,500,000</u>	<u>5,500,000</u>	<u>5,500,000</u>
II. <u>FHWA (Interstate)</u>					
Ramps & Drums to Bus Terminal	7,000,000	1,000,000	2,000,000	2,000,000	2,000,000
	<u>\$7,000,000</u>	<u>1,000,000</u>	<u>2,000,000</u>	<u>2,000,000</u>	<u>2,000,000</u>
III. <u>F.R.A. (Intermodal)</u>					
Renovation to Headhouse	5,000,000	800,000	1,400,000	1,400,000	1,400,000
New construction to Headhouse	10,000,000	1,000,000	3,000,000	3,000,000	3,000,000
Intercity Bus	11,800,000	1,300,000	3,500,000	3,500,000	3,500,000
(Northeast Corridor)					
Intercity Rail	11,900,000	1,400,000	3,500,000	3,500,000	3,500,000
	<u>\$38,700,000</u>	<u>4,500,000</u>	<u>11,400,000</u>	<u>11,400,000</u>	<u>11,400,000</u>
IV. <u>URBAN SYSTEMS</u>					
Summer Street	2,000,000	2,000,000	-	-	-
	<u>\$2,000,000</u>	<u>\$2,000,000</u>			
V. <u>BRA/City of Boston</u>					
Site Acquisition	9,000,000	9,000,000	-	-	-
Garage	16,800,000	1,800,000	5,000,000	5,000,000	5,000,000
Ramps & Drums	7,100,000	500,000	2,200,000	2,200,000	2,200,000
Other Improvements	5,000,000	500,000	1,500,000	1,500,000	1,500,000
	<u>\$37,900,000</u>	<u>11,800,000</u>	<u>8,700,000</u>	<u>8,700,000</u>	<u>8,700,000</u>
<u>TOTAL</u>	<u>\$104,700,000</u>	<u>\$21,900,000</u>	<u>\$27,600,000</u>	<u>\$27,600,000</u>	<u>\$27,600,000</u>

EXHIBIT E

AND

URBAN MASS TRANSPORTATION ADMINISTRATION

AND

FEDERAL HIGHWAY ADMINISTRATION

AND

FEDERAL RAILROAD ADMINISTRATION

SUBJECT: Analysis of the Environmental Impact of the proposed development activities in the South Station Urban Renewal Project, Boston, Massachusetts

- I. Purpose: This Memorandum of Understanding establishes general principles and procedures for the coordination of efforts of the Department of Housing and Urban Development, the Urban Mass Transportation Administration and the Federal Highway Administration in the analysis of the Environmental Impact of the proposed transportation project.

The analysis of the environmental impact of this project is consistent with, and satisfies the procedural requirements of Section 102(2)(c) of the National Environmental Policy Act of 1969. (42 U.S.C. §4332 (2)(c), Council on Environmental Quality Guidelines of August, 1973, HUD Handbook 1390.1 (Proposed as of February 22, 1974), UMTA Order 5610.1 (February 1, 1972), and Federal Highway Administration procedures for compliance with NEPA.

II. Definitions

- A. Project: The proposed project consists of an intermodal transportation complex providing facilities for intercity rail, commuter bus, commuter rail, intercity bus, connections to existing "Red Line" subway, parking facilities, a moving sidewalk within the terminal, and ramp and access road connections to the Mass Pike and the S.E. Expressway; and all other development activities related to the Urban Renewal Project.
- B. Environmental Impact Analysis (EIA) - The analysis of the mass transit aspects of the proposed project and their potential environmental effect pursuant to Section 10(b) of UMTA Order 5610.1



1. HUD Handbook 1390.1 (Proposed as of February 22, 1974) provides that "... prior to the distribution of a Draft Environmental Impact Statement for a Project, a determination shall be made by the appropriate HUD official as to whether a public hearing should be held." Section 50.20 of HUD Handbook 1390.1 sets forth criteria to be followed in this determination.

2. UMTA Procedures pursuant to Sections 3 and 14 of the Urban Mass Transportation Act of 1964, as amended require an Applicant for financial assistance to hold a public hearing pursuant to adequate prior notice, affording all interested parties with a significant economic, social or environmental interest in a project an opportunity to express their views. The EIA is made available for comment at the public hearing.

3. FHWA procedure regarding public hearing are set forth in Federal-Aid Highway Program Manual 7-7-5.

- D. Environmental Impact Statement (EIS) - HUD Handbook 1390.1, UMTA Order 5610.1, and FHWA procedures, pursuant to NEPA and CEQ guidelines, upon a determination that a proposed project may result in a significant environmental impact, require that a Draft and Final Environmental Impact Statement (EIS) be prepared to inform the public, local, State and Federal agencies of the proposed project, and to solicit comments concerning the proposed project.
- E. JOINT EIS - The draft and final EIS shall be prepared for the purpose of satisfying the environmental requirements of the various parties to this agreement.
- F. HUD - Department of Housing and Urban Development.
- G. UMTA - Urban Mass Transportation Administration
- H. FHWA - Federal Highway Administration
- I. FRA - Federal Railroad Administration
- J. BRA - Boston Redevelopment Authority.
- K. MDPW - Massachusetts Department of Public Works; proposed applicant to FHWA.
- L. MBTA - Massachusetts Bay Transportation Authority; proposed applicant to UMTA and FRA.
- M. CEQ - Council on Environmental Quality.

- U. Lead Agency - the lead agency for this project shall be HUD.
- P. HUD Procedures - Those Departmental procedures for the development of an EIS as set forth in HUD Handbook 1390.1 (proposed as of February 22, 1974), Section 102(2)(c) of NEPA, and CEQ guidelines.

III. General Principles

- A. A joint public hearing shall be held in accordance with HUD procedures prior to formal circulation of a Draft EIS; provided, however, that the notice of public hearing shall inform the public of the existence of the Draft EIS, location of its availability for inspection, a full description of the proposed project, that the proposed project is consistent with the existing transit and highway development program for the urbanized area, and any relocation which may result. The notice of public hearing shall be published twice in newspapers of general circulation, the first notice appearing for a period not less than 30 days prior to the date of the public hearing. Copies of the draft EIS shall be made available at the public hearing.

It is the intention of all parties to this agreement that adherence to this paragraph is meant to satisfy the requirements of Section II.C, 1, 2, and 3 above.

- B. A joint Draft and Final EIS shall be prepared in accordance with HUD procedures which reviews the environmental effect of the proposed Project, and adjacent highway improvements which provide access to the project. In addition, the requirements of FHWA PPM 90-2, Noise Standards and Procedures shall apply.

The joint Draft and Final EIS shall be prepared in coordination with UMTA and FHWA. A copy of the joint Draft and Final EIS shall be provided to FRA for comment.

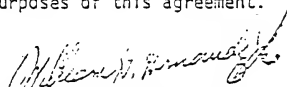
- C. HUD, upon holding a joint public hearing, shall circulate and distribute the Draft EIS in accordance with HUD procedures.
- D. HUD, in consultation with UMTA and FHWA, shall evaluate comments received at the public hearing, and comments received from circulation of the Draft EIS, in the preparation of a joint Final EIS. The Final EIS shall be circulated in accordance with HUD procedures.
- E. Where UMTA determines there has been a significant social, economic, or environmental change in the scope of the project proposed by its applicant, prior to circulation of the joint Final EIS, UMTA's applicant for financial assistance shall prepare an EIA in accordance with UMTA procedures pursuant to UMTA requirements. The comments

received therefrom shall be incorporated in the joint Final EIS prepared according to Section III-8 above.

- F. FRA agrees to adopt and utilize the approved EIS to satisfy their environmental requirements.
- G. Any ambiguities about format, content, procedure and/or technical matters shall be resolved by consultation between the offices of HUD, FHWA, UMTA and FRA.
- H. CEQ Coordination - If in the course of implementing the above procedures, either HUD, FHWA or UMTA determines that advice is required with respect to the protection of the environment, as set forth in the NEPA, then CEQ, as the implementing agency for the NEPA, shall be consulted for the proper course of action.

All communication with CEQ pursuant to this paragraph shall be through HUD as the lead agency for purposes of this agreement.

DATE:


Department of Housing and Urban
Development, Area Director

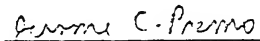
DATE:

DEC 23 1974


Associate Administrator for Right-
of-Way and Environment
Federal Highway Administration

DATE:

12 DEC 1974


Associate Administrator
Office of Capital Assistance
Urban Mass Transportation
Administration

DATE:

JAN 16 1975

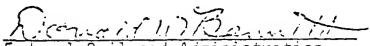

Federal Railroad Administration
Chief Counsel

EXHIBIT F

PRELIMINARY DRAFT

SUMMARY OF SPACE NEEDS
SOUTH STATION TRANSPORTATION CENTER
BOSTON, MASSACHUSETTS

Prepared for
The Boston Redevelopment Authority
One City Hall Square
Boston, Massachusetts 02201

December 5, 1975

by
Parsons, Brinckerhoff, Quade and Douglas, Inc.
Engineers Boston, Massachusetts



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SUMMARY

Parsons, Brinckerhoff, Quade & Douglas was authorized to prepare a program for a Transportation Center based on proposals to consolidate bus and rail terminal operations in one facility also containing a 2,500 space parking garage. Program developed from data available from operators (rail and bus) and generated facilities required to support operations and services of Center transportation components.

Goal: To provide for convenient efficient interchange for travelers between intercity travel modes and local distribution services.

Salient Items:

1. South Station area has been reviewed for about 12 years as site for an intermodal transportation center.
2. Recent events for proposed development have produced need to analysis requirements to generate a detailed program for such a Center.
3. Proposal is to include a rail station, bus terminal and parking facility in one structure.
4. Program developed based on projected intercity and commuter service to 1990
 - o Intercity rail forecasted to grow significantly
 - o Commuter rail to grow modestly to 1990

- o Transportation Center to facilitate modal transfer between intercity and local modes to enhance the attractiveness of public transportation.
- o With coordinate of modal interchange capability, improved bus service can be possible.
- o The existing and projected highway network will support access needs of transportation center.

Program Summary:

Rail - 1990

Daily Ridership:	11,200 intercity
	7,100 commuters
Peak Hour	1,700 intercity
	4,400 commuters
12 tracks and 6 high-level platforms	
Support space --	38,900 square feet

Bus - 1990

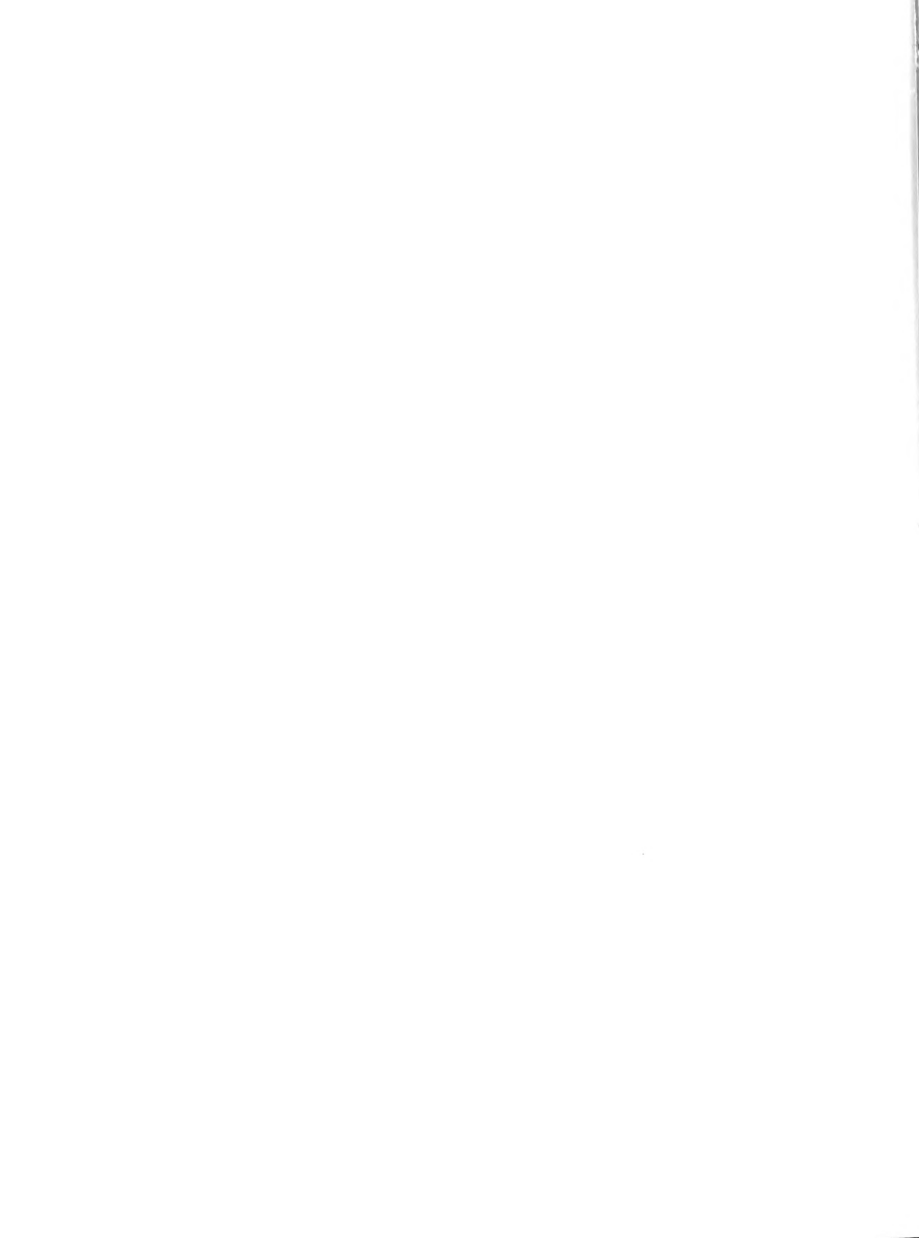
Daily Buses	350-400 intercity
	500 - 600 commuter
Platforms	Intercity: 50 load
	20 storage
	Commuter: 10 unload
	30 Load
Support Space	Intercity: 56,000 square feet
	Commuter: 5,000 square feet

Access Requirements

Taxi Spaces	8 unload
	10 load
Auto Dropoff	10 unload
	10 load
Short-term Parking	100 spaces
Car Rental Spaces	50 Spaces
Stairs/Escalators	Design Dependent
Direct Ramps	

Garage 2,500 spaces

Functional Relationships: Description of basic circulation patterns and space relationships for each mode. Elements identified with some manner of determining importance of different relationships. Important in design development and in evaluation of design alternatives and detailed design aspects.





SUMMARY OF SPACE NEEDS - SOUTH STATION TRANSPORTATION CENTER

INTRODUCTION:

South Station, including the track area to the south, is owned by the Boston Redevelopment Authority (BRA) and is presently used by AMTRAK and commuter trains into Boston. The Station is part of the South Station Urban Renewal area. The plan approved for the area by the Boston City Council in 1969, permits major reuse of a transportation terminal, a parking garage, office space and commercial space.

The South Station area has been under study for over 10 years during which many alternatives have been prepared. These varied in scope and building program but all proposed the consolidation of various intercity and commuter bus operations with the rail operations, all combined with a large parking structure. Analysis of the building requirements have been completed during this period, but the resulting building programs varied based on the extent of commercial or transportation improvements contemplated. The building program developed as part of this present study is based on the combination of intercity and commuter rail operations with the intercity and commuter bus operations from the Park Square and Essex Street areas into a Transportation Center. The goal is of which is to provide for the efficient, convenient transfer of travellers between the intercity carriers and the local travel modes.

The existing station has been the focus recently of a BRA study to determine the probable environmental impacts of the Center. A preliminary building scheme prepared by The Architects Collaborative was used as the basis for evaluation. This plan has subsequently been modified, but the various transportation elements have remained consistent to the general description. The parking garage is to remain at the 2,500 spaces, but some adjustments were made in the number, operation and location of the bus bays and the train tracks.

The prime purpose of this study is to coordinate in one document all the program elements for the Center. An important source of these major elements is the operators using the Center who have provided information on their space needs. From these space requirements, patronage estimates were prepared by transportation mode and the movement forecasts between the modes during the peak hours generated. These estimates are important to determine the number and location of vertical movement elements (stairs, elevators and escalators) and the design of horizontal movement spaces.

The Transportation Center concept permits the incorporation of many modes into one facility and improves movement between them. Presently South Station is used only as a train terminal accomodating about 3,800 daily rail commuters and 700 intercity passengers into Boston. However, since it is located at the

intersection of two major regional roadways, and near a rapid rail station, it is a logical place to provide a Center. for the interchange of travelers from the "regional" modes to the "urban" modes.

The location of rail and bus termination in the Center will service the regions transportation system and travelers to the downtown Boston CBD. At present, buses are required to travel on the congested city streets which lengthens the trip and reinforces the congestion. Also, a present no direct connection exists between South Station, the bus terminals and the airport. Coordination of access to these various components in one facility will greatly improve the overall ease of movement, improving the accessibility of the Boston CBD to the rest of the region for daily commuters. It will also orient visitors to Boston, enabling them to get to their final destination more conveniently.

GOALS AND OBJECTIVES

A Transportation Center is a facility which offers convenient interface between various modes of public and private transportation. To operate efficiently, it should relate with regional and local transportation and commercial functions. This relationship is not unilaterally exclusive since each component of the Center's internal organization is affected by the Center's overall relationship to, and location with, its environment. A review of the various elements in the Center will show how these interact.

TRANSPORTATION FACILITIES

The nucleus of a Transportation Center exists at South Station with the potential modal interface at the railroad terminal, combined with the bus terminal operations. Prime objective of the Center is to bring these various elements together compatibly "under one roof" - achieved by coordination of converging transport modes and convenient interchange to yield a smooth travel flow at an optimum level of operations.

Rail: Convenient access to the rail facilities from other mode vehicles coming to the Center and the interface between the different modes is important. Connection to the rail facilities should be conveniently located and the surroundings pleasant to attract rail passengers - both commuters and inter-city travelers. Planning and design of these elements will require close coordination with the Federal Railroad Administration to incorporate their ideas and requirements.

Planning criteria for clearance and other requirements for the Center include a 22-foot minimum vertical clearance between the top of the rail and overhead obstructions; a 14-foot wide center line-to-center line distance for track layout; a platform length of 1,200 feet with a width of 25 feet for center loading platforms; and, high level platforms.

Rail improvements are anticipated necessitating extensive changes in the track alignment and platform locations on the Transportation Center site. Careful design and planning will be required to insure that the track improvements are



coordinated with construction of the remainder of the Center. The Transportation Center will have to be built at the same time as the track and platform improvements, making overall construction phasing and operational continuity a prime determinate in the design stage.

Bus: Bus facilities should provide convenient and controlled access to the CBD. Consideration should be given to provision of exclusive bus lanes during peak periods to allow for expeditious movement of buses. To accomodate bus service requirements, adequate space should be provided for loading, unloading and layover. This curb-space capacity allocated at the Center must be sufficient to accommodate future changes in headways, passenger handling and layovers, due to anticipated growth in bus service, without increasing the original physical layout of such bus zones.

The bus terminal should be readily accessible to persons on both the proposed elevated pedestrian level and the lower street level. Each interface between the bus and auto, taxi or rapid rail facilities provided should enable passengers boarding or alighting to make connection quickly between these modes with minimal movement between levels. The majority of users of the bus facilities will be oriented to downtown Boston either walking along the elevated pedestrian level, or at street level, or using the rapid rail service.

The intercity bus terminal included at the Center in conjunction with the local bus facilities, will require both passenger and freight handling capabilities. This will establish the Center as a key bus-service link in the regional transportation network, both for the daily commuter and the intercity traveler.

"Kiss-and-Ride": Short-term parking spaces should be provided for "kiss-and-ride" passengers who are driven to the Center, generally to use the intercity rail or bus facilities. Vehicular circulation to and from these spaces should be one way and traffic "back ups" kept to a minimum to avoid conflicts between "kiss-and-ride" and other vehicles leaving the Center. These spaces should be made available as a convenience to other short-term users during off-peak hours. Provision of short-term spaces should be made to serve both rail and bus passengers to the Center.

Taxi and Limousine: Curb space and hold areas are required for taxis and limousines. These would serve taxi requirements of persons coming to both rail and bus facilities. If service to Logan Airport is found to be feasible, this hold area could accommodate this service as well.

Rental Cars: To complement the other modes of transportation, a car-rental station is considered necessary. This feature would provide the most flexible form of transportation to all potential users. Many can be expected to be business travelers oriented to other locations in the region not accessible by

the public transportation modes available at the Center.

Parking: Adequate parking should be provided to accommodate the needs of commuters, visitors to the commercial and retail areas, and users of the intercity transportation services. Access from the regional network, as well as from local streets, should be direct to minimize congestion. The number of commuter parking spaces should reflect the impact of the improved public transportation facilities on automobile usage, and legal requirements to limit parking spaces in Boston. Parking provided at the Center should reflect the overall parking program developed for Boston.

A large segment of the riding public-commuters and downtown visitors alike-should be encouraged to use transit. This will reinforce the need for better commuter rail, rapid rail and bus service and at the same time tend to ease roadway congestion and reduce the amount of parking spaces required. An added advantage of the Center's coordinated rail-bus facilities with easy interchange would be to demonstrate that this kind of multimodal travel inducement can work.

Modal Interchange: The area serving modal interchange should be designed to reduce walking distances. Where vertical and horizontal separations between the modes are necessary, movement

should be limited to one level change. Changes requiring a "U" movement between levels should be avoided. Mechanical systems such as escalators and elevators should be incorporated. Because of the different schedules and operations of the various modes, a central "mixing area" should be incorporated to best effect the modal interchange. Information on delays, time schedules, fares, etc., should be posted in this area. This should also divert travelers to the reception, waiting and ticketing areas for all commercial carriers.

The elevated pedestrian level proposed to traverse Dewey Square connecting with the Transportation Center and other areas of Downtown Boston should play a major role as an interchange area between modes. Access to and from this area and the rail and bus levels should be convenient and direct. Care must be taken to insure that the street level access is also considered. Good access to the rail and bus facilities should be provided from the street level, as well as from snack bar or other such service or concession activities located at the Center to accommodate anticipated pedestrian movements.

Various corridors and waiting areas on the various levels should be designed to provide free-flow movements for all pedestrian traffic. Movement to surrounding commercial facilities and the rest of the downtown area should be separated from movement to the transportation facilities.

Environmental Criteria: A pleasant environment should be provided for both the users of the Center and the surrounding community. Much of the activity connected with transportation and moving vehicles and trains is disruptive to the surrounding land uses. Great care must be exercised to insure an attractive environment for the users of these facilities. Noise levels, traffic volumes, and other discomforting effects of the Center should be ameliorated. Control of these elements should be taken into account in the design of all facilities.

The interior environment must also be inviting. Recent developments in airport terminal design provide good examples of how this can be satisfactorily accomplished. A pleasant atmosphere, a climate-controlled environment, clearly lighted and centrally located information facilities will add immeasurably to the successful operation of the Center's main terminal.

Such elements as graphics, lighting, information dissemination and signs should enhance the operation by reinforcing pedestrian movement patterns. Signs and signals should be properly placed at all levels to guide people conveniently to their destination. Noise-deadening structural materials should be used throughout the Center's interior to insure an acceptable sound level. A public address system should transmit understandable messages and climate control should be provided for year-round operation for patron comfort. The Center must be a step forward in public transportation to demonstrate what can be done in public domain to provide convenient and modern service comparable with

EXISTING CONDITIONS

Boston's South Station is located on the eastern boundary of the downtown area. Downtown Boston is an extremely compact area, and as such the Station is near the central core of the city. The station is directly exposed to the nearby business, financial, and governmental offices including City Hall, the State House and the Governmental Center complex. These activities all attract and produce local, long distance and regional trips. Also, a considerable amount of new highrise construction has been taking place in this area and the South Station complex is within walking distance of much of this new construction.

Within the downtown area, many activity centers have been recently completed as the result of public and private redevelopment activities. This upsurge is due to a number of factors. These include the impetus of the Government Center, the freeway system, and the new bank structures in the area which has exerted a stabilizing influence on land use and the general environmental quality. Finally, legislation which permits lower taxes on new construction has provided an impetus for redevelopment projects. This recent development is forecasted to continue based on the current proposals and plans for public and private redevelopment in the CBE.

South Station is located in a rapidly changing area on the southeast corner of Downtown Boston. Within the last two years, several major construction projects have been started adjacent to, or across the street from the terminal. These include the Stone & Webster Building and the post Office Annex. However, along Atlantic Avenue, South Street and Lincoln Street, which run parallel just west of South Street there is a noticeable amount of deterioration in the older commercial and office structures. Some of these buildings have recently been torn down, but, at the present time no new construction is contemplated. There are also no plans to renovate any of the remaining structures. These areas include the leather district and Chinatown.

At the same time several other buildings are in various stages of planning and construction around the station. The Federal Reserve Building directly across the street from the Station is under construction as is the 175 Federal Street Building. Several other sites in the immediate area as part of the South Station Urban Renewal Area are scheduled for construction of office or commercial structures. Completion of these facilities as well as the two recently completed structures will increase the working population in the vicinity of the station by over 20,000 workers. Since no parking facilities are provided by any of these facilities the majority of the people will use public transportation.

These immediate vicinity developments would be further reinforced by construction to the east of station across the Fort Point Channel. Recent studies have indicated that extensive development will probably take place on the other side of the Channel. Development here would have implications on development at the Station both because of projected public transit usage but also because of the additional traffic which these developments would generate. This is likely to increase the congestion that already occurs in the vicinity of the South Station.

Within the South Station Urban Renewal Area, redevelopment has been progressing since 1971. Within the 82 acre area, all buildings owned by the BRA have been demolished except two - the South Station Headhouse and East wing and the Massachusetts Envelope Building. The head house is presently undergoing renovation which will include demolition of a portion of the east wing. Plans call for the Envelope Building to be converted into a temporary bus terminal.



PARKING FACILITIES

Due to the high density of the nearby CBD, there are a large number of parking spaces - about 3,500 - within walking distance of South Station. These spaces, which are not provided as part of the Terminal operation, are located in 19 separate parking lots or garages available for public parking. This includes two lots operated by the BRA, the owners of the South Station. Over half of the lots have capacities of less than 100 cars; daily parking rates are under \$3.00.

The number of off-street parking spaces in an area as a potential indicates of or the spaces available for commuter use. Parking policy and changes as well as location are, however, the principal determinants of usage. A particularly important factor is the required reduction in parking spaces available for commuters as mandated by the Clear Air Act. The limitation on the number of spaces and their usage by commuters is a prime element in determining the potential for this market.

While curb parking is restricted in the area of the Station, stopping and illegal parking limits the use of the parking lanes for moving traffic. For the few metered spaces, the time limit is generally one to two hours where meters are posted, and rates vary from 10 cents for 15 minutes to 25 cents for 30 minutes. None of these spaces are intended for use by commuters and most have prohibited parking during one or both peak periods.

TAXIS

Taxis are readily available at South Station at an on-street taxi stand on the east side of the terminal. An off-street taxi bay, once existed on the north side of the terminal but has been abandoned. Rental car facilities do not exist currently either inside the terminal or in the immediate vicinity. There is a low demand for kiss-and-ride facilities.

PEDESTRIANS

During the peak periods of commuter movements, hundreds of pedestrians cross the streets as well as use the sidewalks in Dewey Square. This intense pedestrian usage extends along Atlantic Avenue beyond Congress Street, along Federal Street toward Post Office Square, and along Summer Street through Church Green.

Pedestrian access to the South Station is particularly important because it is a generator of a large number of pedestrian trips. an origin-destination study conducted in the area in 1971 indicated that South Station was the destination of about 27 percent of all pedestrian trips during the 4:30 to 5:30 P.M. peak hour. The intensity of trips as well as the dependence on South Station is estimated to have increased over the last several years with the construction of the office buildings in the immediate vicinity.

Another important point from the study, was that distances walked in Boston are longer than most cities in the United

States. Railroad and bus users made the longest walk, with up to 55 percent making trips over 2,000 feet long. This data implies that railroad patrons using South Station made a large number of downtown-oriented trips on foot. This would be reinforced by the incorporation of the bus terminal facilities in a South Station Transportation Center.

SOUTH STATION DESCRIPTION

The existing terminal consists of three elements - the Headhouse, the east wing and the Concourse. Together they will total about 145,500 square feet of space, following the completion of the present renovation and demolition work being undertaken by the BRA. The five-story Headhouse has the major portion of the space (about 88,200 square feet) while the east wing and the Concourse will each have about the same amount of space - 27,900 and 29,400 square feet respectively.

The Headhouse, completed in 1899, is listed on the National Register of Historical Places. This listing subjects any exterior or interior alterations to review by local, state and federal HUD agencies. It consists of a monumental stone bearing wall facade with steel frame and wood plank flooring. Any major renovation (defined as totaling over 50 percent of estimated value in one year) would require alterations to the structural frame and floor to yield appropriate fire code rating. About 50,600 square feet of the total 88,200 are being used. The majority of space is devoted to Penn Central and Amtrak backup operations, while the ground floor

is used by several commercial facilities.

The east wing, which once extended from the Headhouse to the Fort Point Channel, will have only five-bays following completion of the demolition. Construction of the east wing is similar to that for the Headhouse and would require similar upgrading in structural and fire rating if major renovation is undertaken. The east wing is not on the Historical Register, however, and can be modified or demolished without design review. Space utilization is higher in the east wing than in the Headhouse with about 23,000 square feet of the 27,900 square feet available being used. This is over 80 percent utilization as compared to only 57 percent in the Headhouse.

The Concourse is a one-story structure which abutts the Headhouse and the east wing. It serves as the waiting room and transition space for passenger boarding and leaving the trains. This area is presently undergoing renovation as part of the overall station improvement project. Uses to be included in the space following this are the stationmaster, baggage dropoff and pick-up, commissary, concession and circulation to trains. The waiting and ticketing areas will be located in the ground floor of the east wing. This space is also not included on the Historic register and could be demolished without design review process.

Behind the Concourse are the 10 tracks which are still in operation. These serve all the commuter and intercity trains coming to South Station. These are all stub end tracks and end at bumpers at a distance from the Concourse. The platforms serving these tracks vary in length from 450 to 950 feet in length. They start about 100 feet from the Concourse following demolition of this section of the platforms several years ago. The track area is bounded on the west by Atlantic Avenue and on the east by the post office annex.

The track area is generally at elevation +21 at the Concourse and rises to elevation +25? at the switching end of the area. Following the switches, the tracks curve to the west to the Back Bay Station.

Access to the tracks is possible from the Concourse as well as from the Atlantic Avenue and post office sides at the north end. Passengers entering from the Concourse enter first through the Headhouse via entrances on Dewey Square and Atlantic Avenue. One access is presently available from Summer Street which is the street to the north. All the platforms are canopied and have low-level platforms. This provides some protection from the weather but makes entering and departing the trains difficult and time-consuming. Off-peak users frequently must walk from near the end of the existing platforms which coupled with the low platforms make it difficult to use the terminal particularly for handicapped persons.



TRANSPORTATION CHARACTERISTICS

The prime asset in the location of a Transportation Center at South Station is the accessibility of transportation services. The area has traditionally functioned as a major transportation terminus for Boston and the region. It offers:

1. commuter and intercity rail service
2. rapid rail service
3. commuter and intercity bus service
4. access and egress to the major east-west and north-south highways

The major intercity bus terminals are located about one-half mile from the station. Logan International Airport is about 20 minutes away by taxi and 15 minutes by subway and bus from South Station. No direct connection is available between these facilities but the provision of a Transportation Center would bring together the bus and rail operations and make interface with the rapid rail more convenient.

In addition, proposals for the Third Harbor Crossing contained in the "Transportation Plan for the Boston Region" would further enhance the location. Access is proposed only a few blocks from the South Station, and it will provide a convenient connection between the terminal and the airport buses, trucks, limousines and emergency vehicles.

The importance of this interchange capability is shown by the magnitude and mode of arrival of people entering Boston Proper which has remained fairly constant at about 1.8

million persons per day. This has been measured over the last ten years by the Boston Cordon Counts.

At the same time, there has been an important reliance on public transportation modes to bring people into the CBD. The Cordon Counts indicate that the number of people entering the Cordon by public transit is over 41 percent in the morning peak period. This decreases to about 26 percent when considering daily Cordon Crossings. Within the downtown area of Boston, this dependence on public transit increases. Based on data from the Boston Parking Study, about 60 percent of the day-time entries used public transportation. This percentage varied by trip purpose, mode and distance but generally with more dependence on public transit.

However, the proper interchange between the modes is also important, as is the consideration of the direction in which people are entering the downtown area. The facilities in the South Station terminal area are oriented to the people entering from the west and southwest. These are areas which have grown over the past several years rather rapidly and are forecast to have continued growth into the future. The development of a Transportation Center would allow the interception of a large number of people entering the Boston CBD.

PUBLIC TRANSIT

South Station terminal is the main terminal for all intercity trains from the east coast and for all commuter trains to the



west and southwest. Another station on the line - Back Bay Station - accounts for only half the volume of South Station. (Two-thirds of the riders of the lines use South Station and about one-third use Back Bay Station.)

On a daily basis, about 100 trains and over 4,500 passengers pass throughout South Station. This divides into about 80 Penn Central commuter trains which either terminate or originate at South Station and 22 Amtrak intercity trains. One-way patronage on a 1974 peak day was 3,800 commuter and 700 Amtrak passengers for a total load of 4,500. Trains operate in and out of the station almost all day with the first trains out at 5:00 A.M. and the last train at 12:20 A.M. at night.

By far the largest volume of persons served by the station is commuters, 3,800 as compared to 700 intercity passengers. About 2,900 of these or over three-quarters arrive in the morning peak hour. Nineteen trains arrive and depart during this period with passenger loadings ranging from about 450 to 900 commuters. Ridership during off-peak is very low; only four trains run during this time.

Intercity rail service is provided via Amtrak trains to major east coast cities including Washington, D.C. and New York City. A new service has just been reinstated to Chicago via the shore route along the Great Lakes via upstate New York. Passenger loadings on the interstate trains are much less than for the commuter trains, averaging between 100-200 persons per



train. Additional passengers are then picked up at Back Bay and Route 128 Stations. There are no freight operations at South Station and baggage handling - checking facilities are limited. Passenger usage varies daily and seasonally.

RAPID RAIL

Access to the area is provided by the Red Line station at Dewey Square, immediately in front of the South Station Headhouse. The Red Line is the longest and most modern of the MBTA rail transit system. It provides for convenient interconnection with the Orange Line at Park Street and with the Green Line at Summer Street. It carries the most riders of any of the rapid rail lines having headways of less than five minutes during the peak hours and about eight minutes during the daytime hours. This increases up to 15 minutes during the evening hours and on weekends.

Usage of the Red Line has increased significantly since the completion of the Quincy Center extensions in 1971. Passenger entries in 1974 were over 9,000 on an average weekday, which places it fourth among the large-volume transit stations.

The station was constructed in 1915 and consists of two side loading 350-foot platforms at elevation minus 23.8 feet. A mezzanine is constructed over the platform at elevation minus 11 feet; street grade over the station is at approximately _____ feet.



Generally, all access to the platforms is via the mezzanine except for one express egress escalator from the outbound platform up to street level. Access from the mezzanine to the platforms consists of two stairs and an escalator for each platform. From the mezzanine there are three points of access to street level. At Atlantic Avenue, stairs plus an escalator are provided. The kiosks at the Federal Reserve Building and in front of South Station provide only stairs. No direct connection exists from the station to the Headhouse and the only direct connection to grade is the express egress escalator.

EXISTING BUS SERVICE

Within the Transportation Center it is proposed to incorporate the existing intercity bus terminals as well as the commuter service from the south and southwest. These suburban and intercity buses bound for downtown Boston will constitute one of the major uses of the Center.

SUBURBAN COMMUTER SERVICE

Suburban buses currently use the Greyhound and Trailways facilities as well as street frontages near the Essex Hotel opposite the South Station and areas in the Park Square. Many of the operators of the suburban type operations also have inter-city type of service. Consequently, it is not possible to divide the various lines into one of the other category. A similar situation occurs with the MBTA lines. There are several lines which service the area of

the South Station but which also have pick-up and discharging points at other locations.

During the two hour peak periods in the morning and evening, between 13,000 and 14,000 persons use buses to cross the Cordon Line. This is heavily directional oriented with over 10,500 coming in the morning and the same number departing in the evening. This is about 4 percent of the people crossing the cordons during this time. Over three-quarters of the people are using MBTA buses to make the trip. They require about 425 buses for this two hour period. Buses providing commuter type service include Vermont Lines, Bonanza, Englander, Peter Pan, Almeida, Trombley and Plymouth and Brockton Railway Company. This service has shown an increase over the last two years in ridership based on the Cordon Surveys. Ridership during this period has increased about seven percent; both rapid transit and streetcars declined over the same period and railroads increased less than one percent.

Private bus routes serving Boston are heavily oriented to commuter use. Although they are numerous, only a few are presently oriented to South Station; an exception is the Plymouth & Brockton Street Railway Co. Seven of their routes serve Boston and these first stop opposite South Station at the Essex Street at curb side before proceeding to the Greyhound Terminal in the Park Square area. All of the other commuter service lines use terminals in the Park Square area.

All of the other commuter service lines use terminals in the Park Square area, or use curb-side operations. In general, off-street covered facilities are not provided for the majority of Boston's bus commuters.

Four MBTA routes presently use the Mass Turnpike Extension and pass through the South Station Area, and have been indicated as candidates for use of the Center. The lines are No. 300 (Wellesley-Newton), No. 301 (Brighton), No. 304 (Watertown) and No. 305 (Waltham). On a daily base there are _____ buses on these four routes. During the morning peak hour of 8:00 to 9:00 A.M., about 34 buses arrive at the South Station area and 32 depart during the evening peak hour of 5:00 to 6:00 P.M. Ridership on these lines is excellent and generally reflects time savings for commuters as compared with alternative rail transit Green Line service. The No. 304 Route replaces a MBTA Green Line subway spur that was taken out of service.

LOCAL BUSES

Four MBTA local bus routes either terminate or have a stop at South Station. Route 2 connects North Station and South Station. Route 3 connects South Station with Haymarket Square via the North End. Route 6 extends from the Army Base to the Aquarium Station of the Blue Line via the South Station. Finally, Route 7 extends from South Station to City Point in South Boston. During the peak period, between 20 and 25 buses totalling all four lines service the South

Station area. For each route, the number of buses varies from 12 on Route 2 to 5-6 on the other three lines. Service during the rest of the day and on weekends is very limited; indicative of the low passenger volume.

In general, local buses are routed to feed the rapid transit stations throughout the metropolitan area. Excluding feeder service they carry only three percent of the people entering and leaving the downtown area. Traffic operating conditions along the immediate access routes to South Station are generally poor. The problem is largely due to the irregular street pattern which permits few through routings.

However, both the state and city policy is to encourage people working in Boston to commute by public transit. A bus priority access system to South Station is included in the 1974-83 transportation plan. MBTA is currently studying an extensive program of shuttle buses to improve downtown distribution. Simultaneously, alternative methods for improving distribution from the regional line-haul terminals are under investigation. As part of the Central Artery Study, an examination is also in progress regarding a possible rail connection between North and South Stations. In addition to these proposals, the Boston subway and trolley system is presently being improved, and extension of the Orange Line into the northern part of the metropolitan area will improve transit accessibility to South Station.

INTERCITY BUSES

Interstate bus service to Boston is provided by a number of lines using the Greyhound and Trailways Terminals in the Park Square area. These existing terminals are located approximately one mile from the South Station. At the Greyhound Terminal, interstate service is provided by Bonanza Bus Lines, Inc., Michaud Bus Lines, Inc., Short Line, Inc., and Vermont Transit Company, Inc., in addition to Greyhound. Similarly, at the Trailways Terminal, Almeida Bus Lines, Inc., and Peter Pan Bus Lines, Inc., provide service in addition to Trailways of New England, Inc.

Relocation and consolidation of the two terminals in the Park Square area has been the subject of planning and discussions for many years. The relocation of the Trailways terminal is inherent in the current Park Plaza Redevelopment Plan. Both terminals are crowded with buses and pedestrians. Passenger services are modest and hardly conducive to increased usage.

Greyhound has a much more significant operation in the Boston area at the current time than does Trailways. Greyhound is a consolidated corporation whereas Trailways is made up of a number of small operators using the Trailways name. As a result, the Trailways operation is still growing in the Boston area and their space requirements are somewhat less overall than those of Greyhound. In addition, a fierce competition exists between the two companies. As a result, sharing of anything but common waiting room facilities will be impos-

ible and separate but equal facilities of all kinds will be required.

A major part of the operations of the two major intercity carriers - Greyhound and Trailways - and some of the other lines is in the express package service. This is one of the growth elements for all the operators and one of the areas which has to be accommodated in the new Center. Both companies are overcrowded in their present locations and look forward to more space to accommodate further growth.

The number of buses and passengers on a daily basis are difficult to determine because of the similarity of the operations of the intercity and commuter services. Generally, the number of buses and passengers are spread more evenly throughout the day and are less concentrated in the peak hour. Using a breakdown based on distance travelled and number of bus movements in the peak hour, about 37 buses leave the terminals during the evening peak hour on intercity runs. They carry from 750 to 1,000 passengers.

ROADWAY NETWORK

One of the major attributes of the location of a Transportation Center at South Station is the accessibility to the regional transportation roadway network. However, while South Station is accessible from the major arterial highway system serving the Boston area, there are some serious circulation

problems in the area of the terminal. The irregular and narrow streets, compounded by the one-way street system make vehicular travel from the CBD to the terminal very difficult, particularly during peak traffic hours.

HIGHWAYS

Fitzgerald Expressway running north-south and connecting with I-90 furnishes freeway access to the terminal. On and off ramps are located on Summer Street a block from the terminal and access roads to I-90 are situated on Kneeland Avenue, three blocks to the south. Other major routes serving South Station include Atlantic Avenue and Summer Street. Summer Street Bridge one block east of South Station is currently part of major access roadway to the South Boston area. The resulting high volume of peak-hour traffic causes severe congestion in the vicinity of South Station.

LOCAL STREETS

One block from South Station where Summer Street and the I-93 access road intersect at Dewey Square, there is a major traffic congestion and vehicular-pedestrian conflict. The conflict can be attributed to the width of the intersection and the lack of proper traffic-control devices. Traffic congestion also occurs immediately in front of the terminal particularly during peak hours. At many locations, streets have been operating at capacity for many years. A comparison of condon counts taken in 1964 indicated a 19 percent increase in passenger cars entering the downtown area. The effect is

that peak period traffic is occupying a wider band of time both morning and evening.

Federal Street and Congress Street connect South Station to the financial district. Summer Street and Essex Street connect to the retail district. Beach and Kneeland Streets pass through Chinatown on their way to park Square and Back Bay. Summer Street and Broadway are principal connectors crossing the Fort Point Channel to South Boston.

Atlantic Avenue, Purchase Street and The Surface Artery serve as frontage roads for the Central Artery which passes under Dewey Square. The Central Artery passes below the street but above the Red Line Rapid Transit tracks. South Station and Lincoln Street traverses the leather district to the west of the station. In addition, several Central Artery ramps provide access to and from the north. Access to the south and the southwest is provided on Kneeland, South and Purchase Streets, Atlantic Avenue and the Surface Artery.

The street network also affords service for relatively minor modes of transportation. Some of these, however, tend to dominate the street function. Curb-lane use by trucks, buses and taxis reduces the carrying capacity of even wide streets by a large amount. Also the on-street truck loading reduces the capacity.

Traffic utilization of the street facilities in the vicinity

of South Station is related to the location of the area in respect to downtown Boston generators than it is to generators within the area itself. Most of the trips are through trips to and from other sections of the city. The street network is a tight urban system. As a part of the urban system it is subject to several constraints. One major constraint is the major expressway access. Much of the expressway mainline and ramps are presently operating at capacity and cannot accommodate additional traffic in the peak hours. This is particularly significant because the prime access to the Center for both the commuter buses and the auto parkers is from the expressway and turnpike.

To evaluate the operations of the streets in the areas as well as the highways, estimates were prepared of the morning and evening peak hour traffic conditions. These were based on previous work in the EIR as well as data obtained from the various transportation agencies in the area. These were compared with the estimated capacity prepared for each one of the segments in the area. These were also developed from the EIR but confirmed by further analysis.

The general conclusion is that the street network - both local and regional highway is barely adequate to accommodate the present traffic volumes. This restriction is particularly noticable on highway facilities. In addition, there have been several restrictions in the circulation in the area due to the loss of Dorchester Avenue to through traffic. In

addition, there are restricted locations at several of the intersections that lead into the area. These all have restrictions on the direction and amount of traffic that can get to the Center during the peak hour.

PROPOSED IMPROVEMENTS

Area-wide improvements to the existing transportation system have been proposed in the "Transportation Plan for the Boston Region 1974-1983". This plan contains proposals which would improve the roadways in the South Station area and traffic circulation in the general area. Construction of the Third Harbor Tunnel should also help reduce congestion on the nearby Summer Street Bridge. Furthermore, if the proposed special purpose Third Harbor Tunnel were eventually made available to general traffic, much of the existing traffic on I-93 Central Artery would be diverted from the vicinity of the CBD area. This is not presently under construction.



OUTLINECHAPTER 3 - TRANSPORTATION CENTER DEMAND AND PROJECTED
UTILIZATION

Utilizing existing and projected relationships between travel characteristics and the various inter-related urban activities

in the Boston area, correlations have been established to determine the demand for transportation components in the Transportation Center. Pertinent factors have been sizing of all transportation elements, functional plans for internal vehicular and pedestrian circulation and overall integration of the many activities likely to occur in the Center.

The character of the commuter and the intercity traveler are quite different from the standpoint of times of peak travel, duration of parking, and overall requirements. In developing the Transportation Center program and preparing a plan these variations have to be taken into account. Design of bus loading and unloading areas, vehicular ramps and pedestrian facilities has to be responsive to the anticipated peaking characteristics and depends on train and bus schedules. Peak design periods have been for peak 15-minute intervals rather than peak hour periods conventionally used in highway design.

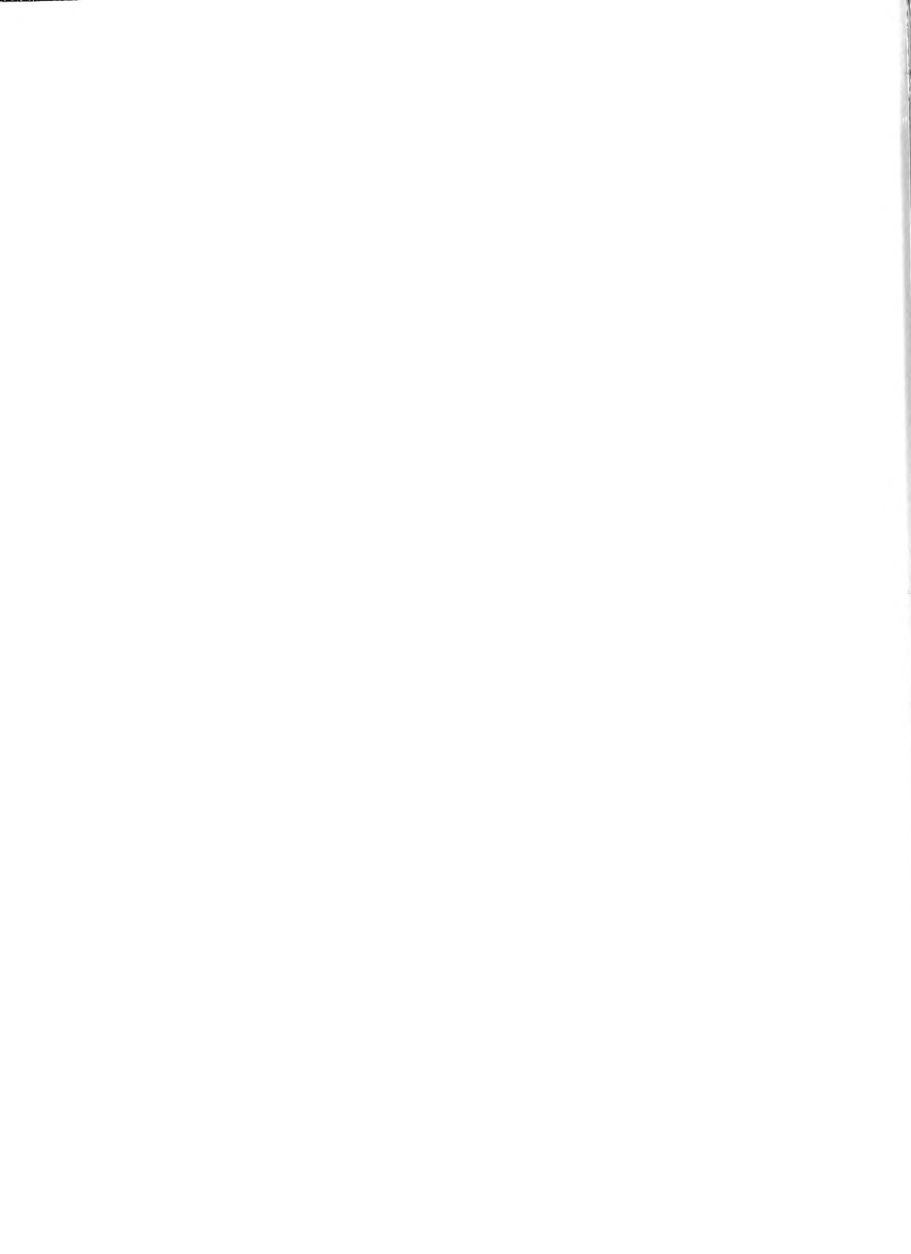
Other reports and documents were used to arrive at the above relationship include the EIR, the FRA task 11 results, previous BRA work and results of the PBQ&D survey. These lead to sizing

of all transportation and non-transportation elements as well as ultimately to the design and evaluation of alternative plans for the Center. A design year of 1990 was selected since FRA estimates were for that year.

- o Basic design control will be provision for peak hour commuter movement through the Center. These are crucial to design control.
- o FRA Task 11 results are principal input for rail terminal facilities.
- o Requirements supplied by Greyhound used to determine patronage for intercity bus terminal. Greyhound figures expanded to serve as basis for Trailways and all other intercity service.
- o Commuter passenger volumes determined by consideration of present bus volumes increased about 15 percent to 1990 volume.
- o Peak commuter periods generated as principle demand factors; morning peak hour set at 8:00 - 9:00 AM and evening peak hour between 4:45 - 5:45 PM.

Estimated Visitation:

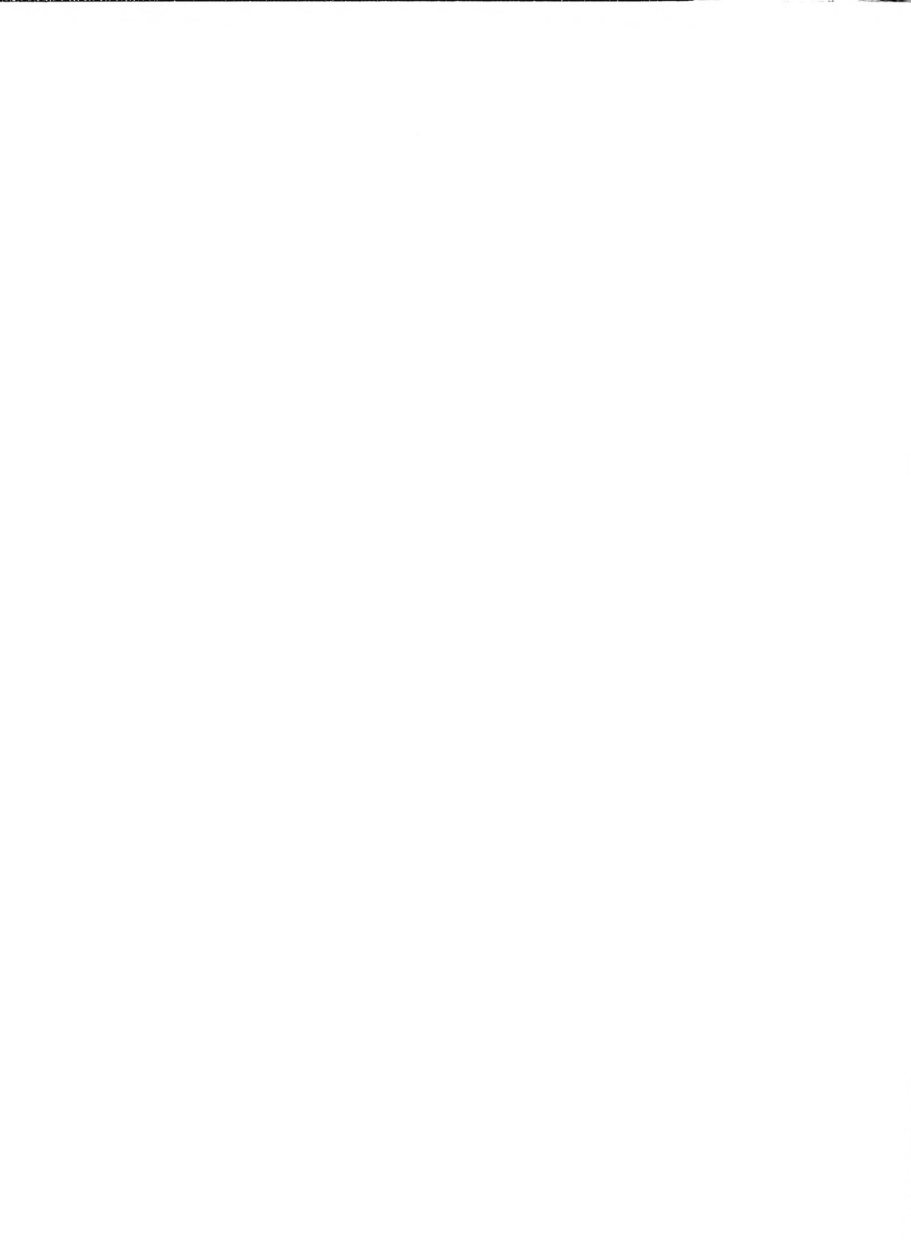
Projections made of daily users of Center in 1990 to all facilities; this assumes completion of all elements in urban renewal area.



- o Daily intercity rail patronage set at 11,700 and commuters at 7,700 (based on FRA forecasts); assumes improved HSR service and increased share of intercity market.
- o Bus patronage at about 18,000 - 20,000 riders total for both intercity and commuter usage; developed from estimate of 900-1,000 buses, divided 350-400 intercity and 500-600 commuter. Assumes expansion of express bus service and MBTA program to the south in the high growth areas. May require exclusive bus lane operation of some sort because of highway congestion.
- o Parking garage (assumed at 2,500 spaces) oriented to heavy commuter usage; however some spaces need to be reserved for short and long-term parking and for rental car vehicles. Short-term spaces for passenger/freight drop-off; long-term spaces for intercity travelers.

Distribution of approach of arrivals/departures at Center estimated based on Cordon Crossings and distribution of drivers to CBD from Parking Study; Indicates higher percentage of arrivals via the highway (this requires further work and correlation with assumption that auto trips to Center can still travel on highway since they are replacement trips. Assumes that relocation of parking spaces to the Center means trips can be relocated as well).

Mode of arrival developed from FRA report for intercity travelers



and from PBQ&D survey for commuter travel. Modifications made to account for different location for bus commuters. (Needs to be confirmed and decision made as to bus stop location; i.e. will commuter buses stop at other locations in the CBD). Destination of trip and mode for bus commuters at Park Square and Essex Street reviewed and implication used to estimate mode of arrival percentages. Prepare estimates of daily visitors to Center by mode to all transportation elements - categories are private auto, local bus, taxi, limo., and rapid rail, walk.

Daily arrivals estimated for 1990 used to arrive at peak hour arrivals and departures by mode. Other input is present train and bus schedules indicating peak hour loading - these are controlling for design. Rough first estimate, about 14,000-15,000 users during moving peak hour. Includes about 10,000 - 11,000 coming to Center via bus, rail and auto and about 4,000+ coming from CBD via local modes to leave outbound from Center. Those leaving outbound include reverse commuters and intercity travelers.

Demand for Transportation Facilities

Estimates of visitation and contribution by mode, determine extent and size of transportation-related facilities in the Center. For both rail and bus 15-minute peak hour arrivals/departures used to determine size of elements. For auto commuters, 80 percent of daily usage assumed for peak hour and

40 percent of that for peak 15-minute period. This used to determine need for ramps both internal and external.

(Consideration also required of available capacity on local streets and highways to accommodate autos).

Transportation Center users will require about 100 short-term spaces and long-term spaces. Car rental needs of 50 spaces. Also from peak 15-minute visitation needs for 20 auto drop-off and 18 taxi drop-off spaces were generated. Six railroad platforms obtained from FRA report; intercity bus bays requirement taken from Greyhound letter, expanded for Trailways/others- 25 for Greyhound and 25 for Trailways/others. (This requires closer examination to substantiate need for this many bus bays; confusion exists as to which buses would want to use sawtooth intercity loading bays and which would want to use lineal pull-through commuter type bays).

Passenger estimates developed from bus movements assumed 20 persons per bus on a daily basis, increasing to about 25-30 during peak period for dominant direction buses.

Vehicular Access

Direct access ramps required for autos and buses to highways (exact connection depend on approach distributional analysis). For local streets, need access for bus, taxis and autos - both to upper bus level and at street level. Important functional



aspect influencing bus ramp design will be determination routing for express buses - i.e., will they make other stops in CBD. Also important is available capacity on highways and streets.

Access required for parking as well as for drop-off of passengers and freight. Relates to final design; number of drop-off and short-term parking spaces determined. Peak hour vehicules and circulation requirements will determine this portion of access.

Other Demands

To compliment major transportation elements, it is necessary to provide for pedestrian movements within and to the Center, car rental facilities, airport limousines, and (possibly) sight-seeing buses. About 50 spaces needed for car rental; limousines are included in taxi space determination; and sight-seeing buses can either use one of inter-city berths or local bus stops at street level.

Pedestrian movement improvements include direct connections to rapid rail station and grade separated walkways. Design needs relate to heavy pedestrian movements along Summer Street, to newly constructed commercial space and to proposed developments in urban renewal area. Important to coordinate walkway with travel patterns and activity locations to respond to usage and safety (from crime) problems.



Freight Activities

Important function for both rail and bus- but more so for bus. All major intercity bus carriers provide some type of express package service. Requires access for autos/taxis to Center, short-term parking spaces and convenient access between work area to buses as they are parked at the platforms. Off-street loading and unloading should be provided in plan. Room for expansion also of prime importance because of high income producing potential of this service.





Chapter 4 - Space Requirements and Functional Relationships

Space requirements were developed from several sources. For the operational and support areas for the rail terminal, the requirements were supplied by the Federal Railroad Administration as part of their work on the Northeast Corridor improvement tasks. For the Greyhound Terminal portion of the intercity bus terminal, program requirements were supplied by the Greyhound staff. These requirements were used as a guide in preparation of the preliminary requirements for the Trailways and other intercity carriers. The bus bay and support requirements for the commuter bus operation were developed from an analysis of the buses and passengers which are estimated to pass through the Center during a peak hour. Finally, the visitation and utilization estimates were used to generate additional elements which are needed to accommodate the movements of users between the various modes. In addition, elements of retail space and other aspects of the Center were based on the report prepared by Gladstone Associates for Massport in 1972. While this report is several years old, it did contain information on discussions with various interested parties and indicated their requirements for the Center.

The generated demands were prepared for elements such as taxi and auto drop-off and pick-up stands, short-term parking requirements for passenger and goods drop off, and vertical and horizontal movement needs. This latter requirement relates to the necessity of moving people between the modes at peak hours. Generally,

this movement is in "slugs" and is subject to very high peaking characteristics and resulting overdesign to accommodate these movements. Listing of these requirements is by the Center components of an operational nature and those generated from these operational elements.

The elements to be included in the Transportation Center are based on trying to improve the movement between the intercity modes and those of the urban center. The main parts of this plan are:

1. A new train station having rail improvements of 12 new tracks with wider and larger high-level platforms and a new switching system.
2. A commuter bus terminal
3. An intercity bus terminal
4. A renovated Headhouse which will preserve the historic significance of the terminal.
5. A parking garage for 2,500 spaces.
6. Highway ramp improvements providing direct access for cars and buses to the Fitzgerald Expressway and the Massachusetts Turnpike.
7. Subway improvements including the provision of direct access to the new terminal and modernization of the existing subway station.

These elements constitute the primary operational elements for the Center; from these elements, other support requirements are generated to provide for the interaction between the various modes of travel.



Center Components - Operational

The needs for bus and rail terminals are divided according to the commuter and intercity travellers. For each, the physical requirements and the functional characteristics are presented. The following table summarizes the suggested program for the Transportation Center by functional component.

Railroad Terminal - The prime railroad requirements are for 12 tracks and serving platforms. Three platforms are to be between 850 and 1,200 feet long, and three at 1,200 feet. The longer platforms are the preferred ones, but because of site restrictions, shorter lengths can be adopted. Generally, the platforms are on tangent sections of track, but curves are permitted again to accommodate to the site requirements. These tracks are to be used by both the intercity and commuter trains. The stub end of the platform should be as close to the existing Headhouse as possible to keep walking distances to a minimum.

Facilities will be needed to support such operations as passenger services, passenger handling area, station and train support area and employee facilities. Also proposed are improvements in the switching gear and other yard elements south of the Headhouse which are part of the overall intercity rail improvements. The rail terminal requirements, for the interior spaces, are approximately 39,200 square feet. To this must be added the area for platforms and the improvements to the switching gear and yard areas.

TABLE
SUMMARY SUGGESTED BUILDING PROGRAM
SOUTH STATION TRANSPORTATION CENTER

<u>PROJECT ACTIVITY</u>	<u>AMOUNT</u>
<u>Rail Terminal</u>	
Maintenance Facility	-
Track Improvement	
Track relocation	12 Tracks
Signal: interlocking control system	-
Platforms	6 Platforms
Related Space	
Office and Operations	6,000 Sq.Ft.
Waiting area/concessions	29,100 Sq.Ft.
Freight handling	3,100 Sq.Ft.
Train crew facilities	<u>1,000 Sq.Ft.</u>
subtotal	39,200 Sq.Ft.
Headhouse/East Wing Renovation	116,100 Sq.Ft.
<u>Bus Terminal</u>	
Intercity Bus	
Loading bays - 50	70,000 Sq.Ft.
Storage bays - 20	-
Bus maintenance bays - 20	30,000 Sq.Ft.
Platforms	25,000 Sq.Ft.
Waiting/Ticketing Area/Retail	18,200 Sq.Ft.
Passenger Service/Office	5,800 Sq.Ft.



Express Package Service	20,000 Sq.Ft.
Restaurant	20,000 Sq.Ft.
Commuter Bus	
Unloading bays - 10	1,600 - 2,000 lineal feet
Loading bays - 30	
Waiting/Ticketting	5,000 Sq.Ft.
Platforms - 30 positions	48,000 Sq.Ft.
Ramps - To highway and local streets	-

Parking Garage

Garage	2,500 spaces
Internal Circulation	-
Vehicular	
Pedestrian	
Ramps	-
To highway	
To local streets	

Center Facilities

Parking	
Short-term	spaces
Long-term	spaces
Car Rental	spaces
Drop off/Pick up Spaces	
Auto	
Load	10 spaces
Unload	10 spaces
Taxi/Limo	
Load	12 spaces
Unload	8 spaces



Bus - Local/ sightseeing	4 spaces
Commercial/Retail Space	-
Pedestrian Circulation	-
Walkway connections	
Connector to Subway	
Vertical Movement	
Escalators	
Stairs	

This does not include the general circulation space required for travellers to move between the various modes.

Functional requirements for the rail terminal portion of the Center are contained in various Federal Railroad Administration (FRA) reports. These provide for access to the terminal for both inter-city passengers and commuters. Generally, the Dewey Square entrance would serve as the main entrance to the Transportation Center. Passengers would arrive at grade from this entrance. Subway trans-ferees would reach the Center by means of a direct connection into the Center composed of stairs, escalators and/or an elevator. These alternative vertical movement options make the Center easily accessible and are proposed to serve the physically handicapped. Ticket windows should be located on the street/concourse level. Admission to the train platforms from the concourse should be controlled and prior to a scheduled boarding, passengers would line up at the designated area or sit in the waiting room.

Provision should be made for "Red cap" assistance. Baggage could, however, be checked at a counter near the ticket office or carried on board. Baggage storage and transporting aids would also be available at the concourse level."

The waiting room and the ticket purchase areas should also be at the concourse level and be clearly marked. Ticketing facilities should be arranged so that queuing area would not interfere with primary passenger movements. In addition, to avoid conflict with

passenger movements, baggage should be checked and claimed at counters adjacent to the ticket offices, and should be stored in this area until transported to the trains. A separate area for package express handling should also be provided.

The existing platforms will be demolished and the tracks rearranged. The new construction will include three new high-level platforms, 1,200 feet in length, serving six tracks. These tracks would be situated over 1,200-foot long train inspection pits. In addition, three commuter high-level platforms, 350 to 1,200 feet long would serve an additional six tracks.

An area for securing ground transportation should be conveniently located immediately inside the Center. Direct telephone lines should connect to various modes of ground transportation. Services should include information concerning local and intercity buses, rapid rail, airport connection, car rentals, limousine service and taxis. All other concession and retail activities should be located at the concourse level.

Important consideration should be given to needs of commuters who will constitute the majority of peak hour users. They require less overall support spaces, but do not need more movement space. The principal movements of commuters will be from the rail platforms to the subway station and to the street or the proposed elevated skywalk to the surrounding office and commercial facilities. These same movements will be made by the intercity travellers, but the elements will have to be sized to accommodate the volumes of

commuters at peak times.

Bus Terminal - Requirements for the intercity and commuter bus operations require separate facility which is not true of the intercity and commuter rail activities. However, as with the rail service, the intercity portion of the operation requires more space for the functional operation of the buses and for the waiting and support space than does the commuter service. However, the commuter passenger needs more space to permit the movement between the buses and the various modes used by travellers to complete their trip to the Boston CBD area.

However, for both intercity and commuter buses, direct ramps are required to connect the Center to the adjacent highways and to the local streets. The movements to the local streets may be required since the express bus service may continue on to other stops in the vicinity of the Center.

Intercity operations require service for three main categories - Greyhound, Trailways and all others. In total, 50 sawtooth bus bays and 20 storage bays are needed. In addition, 20 bays are needed to provide for minor maintenance which could also provide additional bus storage space. Together, the bus bays, loading platforms and maintenance area requires about 125,000 square feet. This does not include the amount of bus circulation space nor the circulation space needed for passengers to move from the buses to the remainder of the Center.

An important element for the intercity carriers is the provision for express package service, a service provided by most of the carriers. This includes the intercity lines, as well as some of the commuter lines. The package area should be convenient to the bus platforms, as well as to the auto/taxi drop-off spaces. The drop-off point should have parking for about 30 short term spaces and also some dock space to accommodate trucks picking up a package. There is a need of about 15,000 to 20,000 square feet for this facility.

The waiting/ticketing and concession area would require about 50,000 square feet. Included in the space would be restaurants, visitor information center, baggage check-in, travel bureau, lost and found and customer service office. In addition to this space, there would be a need for about 5,800 square feet of office space, to serve as backup space to the overall terminal operation.

Important functional relationships exist between the intercity bus waiting and platform, as well as the drop-off facilities. They require close coordination between these facilities with the least amount of movement between levels. To the extent possible these should all occur on one level. With the multi-level concept proposed for the Center, this will be difficult to achieve, but the simplest plan will be developed.



Another important functional relationship exists between the express package drop-off and the bus bays. The packages must be moved from the drop-off storage area to and from the buses, and the least amount of conflict and movement problems are desirable. Any level change will require mechanical aids -- either elevators or conveyors to move the packages. These will be required for both Greyhound and Trailways operations because of the competition between the two companies. Convenient access to the drop-off point for autos and small commercial vehicles is also required. This should be a well-marked location to reduce confusion and problems getting to the proper location.

The problems inherent with many of these movements result from the upper level location of the bus platforms. This necessitates the drop-off of passengers and baggage at another level and adds to the movement from drop-off to bus boarding. The location of a drop-off curb space also at an upper level helps to ameliorate some of the problems with this. The ticketing, waiting and baggage drop-off points will require careful consideration to determine which level is the best for their location.

Commuter operations require substantially different physical requirements than do intercity operations. The commuter facilities are to be located at the same upper level as the intercity elements and will use the same direct ramps to highways and local streets.

The prime differences are, first, the faster load and unload times which result in less "dwell" time at the platforms; and second, the lack of baggage and large packages associated with intercity passengers.

The commuter bus operations need both load and unload platforms. Buses should unload passengers at the unload platforms and then be able to proceed either to the load platform or out from the Center. They should also be able to proceed to the intercity platforms in the case of those buses which have characteristics of both commuter and intercity operations during peak hours. Using forecasts of 1990 peak 15-minute bus movements, a total of 10 unload bus bays and 30 load platforms are considered necessary.

These platforms should generally be as short as possible with not more than four routes originating from any one platform. Also, the platform location should minimize the distance to the rapid rail station, as well as downtown Boston, since these are the principle destinations of bus commuters. Also, the number of stairs/escalators should be adequate to accommodate the peak movements, particularly for the unload platforms. The load platforms need adequate space to accommodate the queues of people waiting to get on the buses. A length of _____ feet is required to hold the people waiting to get on one bus. These holding areas are designed for the evening peak hour which is the heaviest loading period.



Generally, the waiting and ticketing areas of the intercity terminal will be adequate to serve the commuter bus passengers as well. The waiting period for these passengers tends to be much less than for the intercity traveller and the surges of commuters occur at times other than for intercity travellers. However, a waiting space of about 5,000 square feet should be allocated specifically for commuters to serve those peak overflow times when peak accumulation occurs for each service at the same time. Also, some space may be required for MBTA support spaces, as well as private commuter lines. In addition, consideration should be given to direct connections to the Maintenance Yards which are located southeast of the South Station site. This could help ameliorate the problem of having to provide peak-hour storage for about 100 buses. This would occur in the evening peak hours when many buses are needed in a short period to dispatch passengers quickly from the Center.

The essential movements of buses would be into the Center to the unload platform, then to the load platform (either lineal or saw-tooth) and out of the Center. An intermediate stop could be made at the express package area if this service was being accommodated on a particular run. These two platforms are necessary for larger scale operation, as envisioned at a Transportation Center. To provide for some interruption of this preferred flow, a turn-around should be provided at the bus level. Also, provisions should be made for a potential bus breakdown. By-pass lanes are required as is the space to provide for a tow-truck to get to the front of the bus.



The passenger movement from the upper level commuter level will be almost totally to the rapid rail station and walking away from the Center. Sufficient stairs and escalators will be needed to limit congestion and provide an adequate level of service at the peak demand periods. Also, the platform should be located as close to the Headhouse portion of the Center to reduce the walking distance to this travel mode. Adjustments should be considered in light of the proposed elevated walkway. This element crossing Dewey Square will get the majority of its users from the buses and care should be given to insure easy movement from the buses to Downtown CBD.

A third type of bus service is to be accommodated -- local buses to at-grade streets. These buses generally connect South Station to North Station, Haymarket Square and _____. They run most during peak periods, but don't appear to be candidates for being taken to the upper bus level in the Center to load and unload passengers. It is proposed to leave these stops at generally their present locations at-grade, along Summer Street and Atlantic Avenue.

Given the headways of these buses during peak hours, a program requirement of one bus bay stop, along Summer Street and three along Atlantic Avenue has been determined. Those along Atlantic Avenue should be accommodated in an off-street curb stop. Buses would have to stop on the street on Summer Street. Also, if determined to be necessary, these bus stops could be used to accommodate travel sight-seeing buses.



Garage - A 2,500 space garage proposed for the Center should have direct connections to both the highways and local streets. Access should be oriented to the north (local streets) and to the south (expressways and local streets). Recent trends indicate more traffic would arrive at the Center via the expressway, particularly, since the majority of the daily parkers are proposed to be commuters.

The high commuter usage requires provisions of enough ramps both internally within the garage and externally to the local street to accommodate the heavy peak hour exiting and entering volumes. However, the exiting ramps, both their number and location, will require careful coordination with the street pattern because of the heavy traffic volumes on local streets and highways. The major constraint is the present congested situation on both the Mass. Turnpike and the Fitzgerald Expressway.

While the majority of spaces are reserved for commuters, some spaces need to be maintained for short-term and long-term parkers. About 100 spaces should be reserved for short-term use and about 500 spaces for long-term parking. Both are for use by people, utilizing the intercity rail and bus terminals. The short-term spaces are for people dropping off passengers, and the long-term for passengers who have driven themselves to the Center. At the same time about 50 spaces should be set aside for storage of the rental cars.

Generated Space and Movement Requirements

From the estimated passenger movements between the modes in the Center, requirements to accommodate these movements were generated. Pro-

vision for movement of goods in the Center is also considered. While some of the elements can be determined prior to design, some adjustments and final determinations depend on the design of the Center. Such items as the number and width of escalators and stairs between levels and the number of drop-off spaces have to be determined as part final design. The following discussion of these elements is divided according to those which provide for external connection to the local streets and to the highway network, and for internal circulation within the Center.

External Elements - The prime elements in this are the ramp connections for autos to the highways, the drop-off spaces for autos and taxis and the pedestrian connections to the subway station and the Boston CBD. Program requirements for each of these elements is based on peak-hour movements.

For the taxi spaces, approximately 12 load and 8 unload spaces will be needed. These are anticipated to be distributed on the upper bus level and on the street level along Atlantic Avenue. These facilities are preferred to be located on an internal ramp system for picking up and discharging passengers and space include requirements for stacking of taxis during busy periods. The internal ramp system is more efficient, reduces the exposure to elements for the taxi passenger and alleviates congestion on surrounding streets. These spaces and the relation of the load and unload spaces should be such as to provide for similar operational capabilities as at an airport. Taxis should be able to unload passengers and then proceed to the storage or load areas with a minimum of conflict and reverse

travel. The number of spaces suggested would provide service for both rail and bus passengers to the Center.

Some drop-off spaces are also needed for auto arrivals to the Center; about 10 load and 10 unload spaces are required. As with the taxi spaces, these spaces should be distributed on the upper bus level and on the street level. The general movement patterns for these vehicles should provide for the drop-off of the passenger and then the movement to the short-term parking space. The reverse movement should also be provided to allow people to park and then to pick up arriving passengers at the waiting area. Besides the access to the passenger areas, some drop-off capability should be provided at the express package service area. These spaces should also provide for light commercial vehicles and small trucks since these vehicles would be arriving at these facilities.

Short-term parking spaces would be provided for bus and rail users to the Center of both its passenger and freight services. As noted in the previous paragraph, the short-term spaces should be related to the drop-off spaces. They should act in the same function as elements do at an airport. Generally, it is anticipated that these spaces would be accommodated as part of the parking garage. Based on the peak hour arrivals to the rail and bus terminals and the needs of the carriers, approximately 70 short-term spaces are required to accommodate the bus and rail passenger arrivals/departures. In addition to this, about 30 short-term spaces are needed for the express package operations for a total of 100 short-term spaces.

6.

Pedestrian access to the Center is most crucial because of the high percentage of people who arrive or depart by walking.. This has been documented by the recent survey and by the previous study conducted in 1971. These have shown that the major movements are along Summer Street and to the northwest to the Boston CBD. These patterns are likely to shift somewhat with the construction of the office and commercial facilities in the immediate area of the Center.

Besides these connections, an important element is the direct, convenient covered connection between the Center and the subway station. The subway station is anticipated to get more use with the relocation of the bus terminals to the Center and the proposed increased useage of the rail service. The present proposals for an elevated pedestrian walkway indicate its vertical location at the same level as the upper bus level. This requires careful design of the walkway to coordinate it with the proposed activity locations and circulation patterns to insure that it will be properly utilized. In this regard, some consideration should be given to possible alternatives, which provide pedestrian passageways connections with the subway station. This would consolidate and reinforce pedestrian movement patterns. Trip patterns and uses would be better coordinated particularly since the Federal Reserve Building proposes to connect to the subway station at one of its lower levels.

The important design aspect of the pedestrian walkway besides its location is the width of the walkway and access stairs or escalators. These will partially depend on the design of the Center since the location of the walkway vertically will influence the number and type of pedestrians who will use it.

Internal Movements - Some identification of the internal movement requirements can be made but the actually sizing of the elements will depend on the location and number of the platforms for the rail and bus terminals. Access elements are discussed in following based on those needed for the vertical and horizontal movement of people in and through the Center.

The important vertical movement is from the rail and bus platforms to the street, walkway and subway station levels. These vertical movements must be designed to accommodate peak-hour pedestrian movements and to provide for the handicapped and to satisfy queueing and safety requirement. This will be most important on the bus loading and unloading platforms. The design is related to the number of buses that will unload or load at any particular platform and the number of stairs and escalators which can be provided.

Commuter peak-hour volumes will determine the pedestrian volumes that have to be accommodated. Generally, these are the movements from the commuter bus unload platforms and from the rail platforms in the morning and to the bus load platforms and rail platforms in the evening. Another important design of access will be to the subway station. With the commuter bus platforms, care is required to coordinate the stairs/escalator number and size with the platform width and length to insure that enough space is available on the platforms to accommodate boarding or alighting passengers. A preliminary design consideration is that not more than four bus routes should originate from one platform. This insures that

enough storage room exists for queuing passengers and that people do not have to push passengers waiting to get to their bus.

Vertical circulation from the parking garage is mostly to the rapid rail and to street level. Little movement occurs between the garage and the bus and rail terminals, and that which does is related to the intercity travellers. Because of the shape and orientation of the garage, the prime vertical movements will occur at the narrow end of the facility. Stairs, escalators, and elevators will be needed at this end to serve the movements. The size and number will be determined by the peak-hour commuter movement into and out of the garage.

Another important consideration for vertical circulation relates to the fire code regulations. This will necessitate escape stairs the length of the garage, down to grade. Because of the location of the garage over the train tracks, these stairs will have to be along the edge of the garage. These stairs can probably also be made to serve the fire escape requirements for the bus terminal as well.

The most important vertical element is related to the function of the Transportation Center and should be located near the Headhouse end of the Center. These circulation "core" would provide access to all modes at the different levels. It should also be oriented to allow connection to the pedestrian walkway. Overall, it should orient the user of the Center to the modes and permit easy access to them.

While stairs and escalators are more constraining on movements because of their narrow width, horizontal movement corridors and spaces have to be sized to accommodate the anticipated pedestrian volumes. The major horizontal movements will occur on the street level and the upper bus level. These will be determined by the peak-hour bus and rail commuters and their movements to and from the Center. As with the vertical movements, the actual layout will depend on the Center configuration. The prime determinant will be required for the corridor widths, number and location of doors and the open space needed to accommodate the cross pedestrian movements.

Another element of the horizontal movement considerations is to keep the walking distance between the bus and rail platforms and the Headhouse to a minimum. The intermodal transfer is the most noxious to travellers, and all efforts should be aimed at reducing the time for this to a minimum. Today, about 1 1/2 minutes are required to walk from the entry to the Headhouse at Deway Square to the stub end of the rail platforms. This time doubles when a passenger has to walk to the end of the platform. The functional and operating characteristics of both rail and bus generally necessitate long platforms; and thus, there are limits as to how small this can be made.

Communication - An important requirement of the Center is the proper layout of graphics to direct user to their particular mode or destination. Special attention needs to be given to the intercity

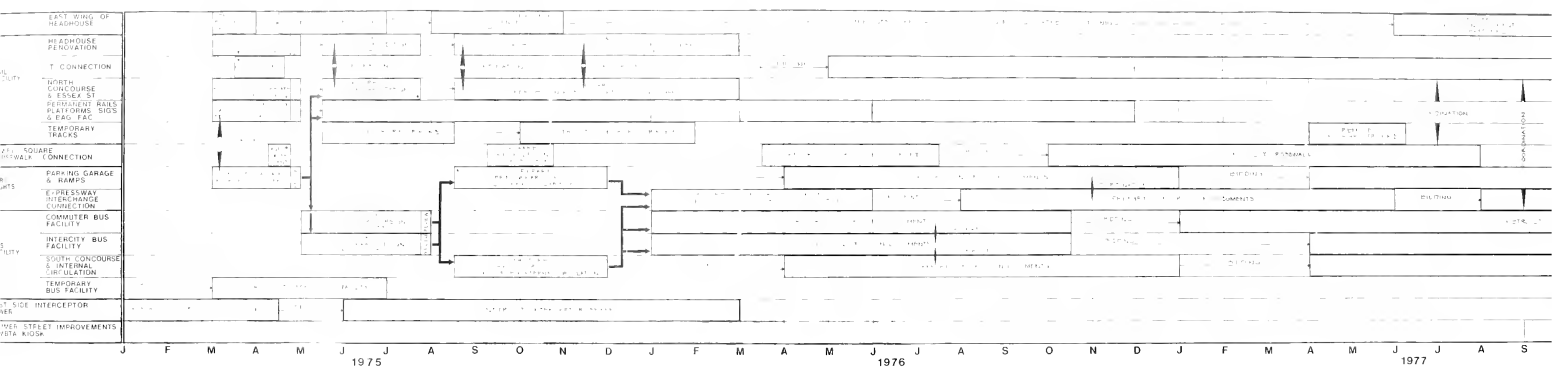


traveller, who uses the Center only infrequently. Displays of access to the various modes should be provided similar to those at Logan Airport. The routes and means to get there would be easily noted. Access to other parts of the Center should be equally displayed.

Besides graphics to serve the user once inside the Center, equally important are direction signs for those approaching the Center. These are of particular importance because of the various elements of the Center which are located at different levels. Directions should be provided for all auto and taxi approaches to the Center, similar to airport graphics to enable the driver to get to his destination most conveniently.

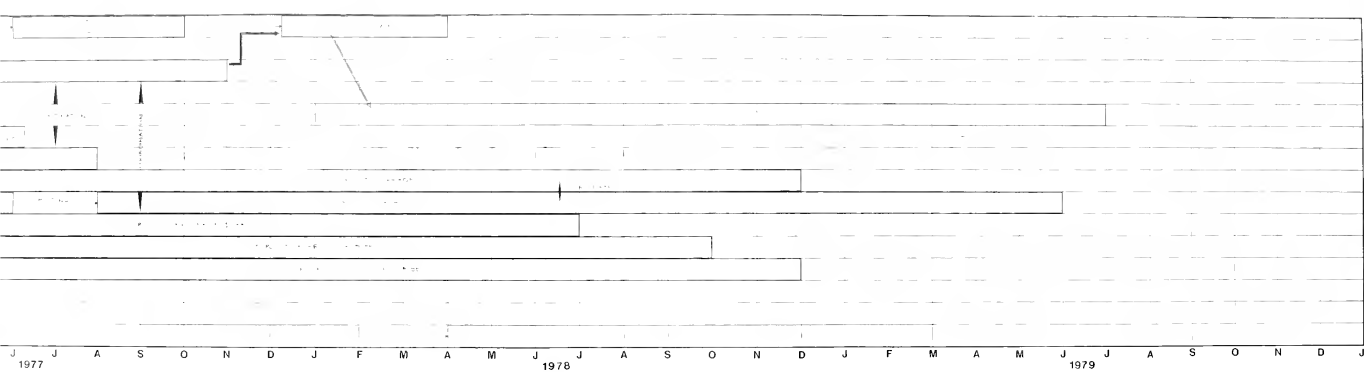
Other Requirements - Other possible elements to be incorporated in the Center are for users of the renovated space in the Headhouse and east wing and for commercial/retail uses in the new space. These developments require market study to determine their feasibility.

EXHIBIT G



SOUTH STATION TRANSPORTATION CENTER

TASK FLOW CHART



CHART

SCHEME A

PARSONS
ENGINEERS

BRINCKERHOFF
ARCHITECTS

QUADE & DOUGLAS
PLANNERS





FREDERICK P. SALVUCCI
SECRETARY

Boston
The Commonwealth of Massachusetts
Executive Office of Transportation & Construction
One Ashburton Place
Boston, Massachusetts 02108

December 19, 1975

Robert T. Kenney, Director
Boston Redevelopment Authority
City Hall
One City Hall Square
Boston, Massachusetts 02201

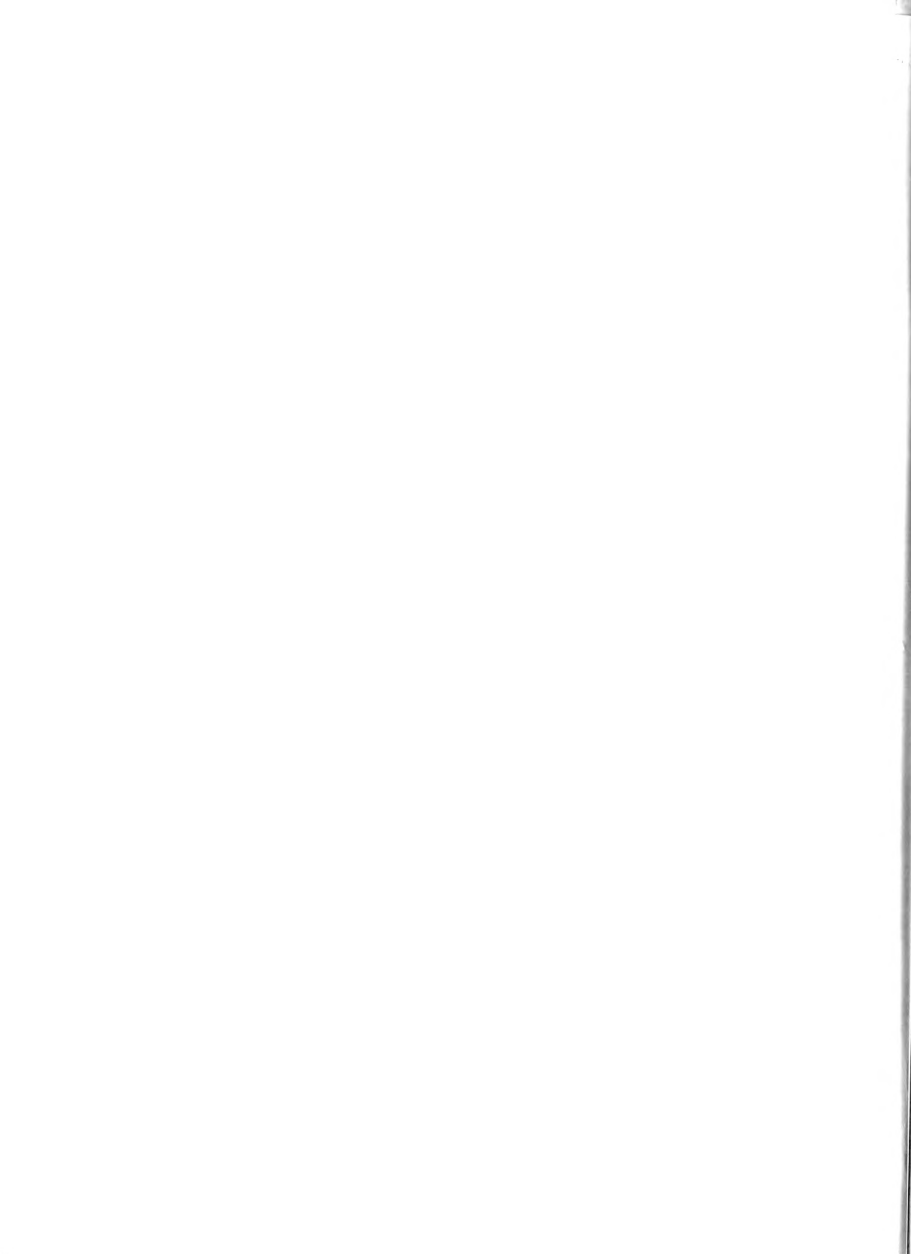
Dear Mr. Kenney:

RE: PROPOSED SOUTH STATION INTERMODAL
TERMINAL

As you are now proceeding with an application to the Federal Railroad Administration for planning funds for the proposed South Station Intermodal Terminal, I would like, as Chairman of the Metropolitan Planning Organization, to confirm our continuing interest in the undertaking.

All aspects of the proposed facility are consistent with the Transportation Plan and Transit Development Program for the Boston Metropolitan Region. The Terminal will provide better intercity and commuter rail service, a consolidated bus terminal with ease of access from both the major north-south and east-west expressways, enhancement of rapid transit connections and improved parking arrangements within the parking freeze. We are of course concerned with the manner in which all the elements are designed, coordinated and carried forward. Costs and funding are also important, and this letter is not intended as a commitment of funds from us at this time. The environmental issues we expect to be covered in your upcoming Draft EIS which is being done under a Memorandum of Understanding among HUD, UMTA, FHWA and FRA.

RECEIVED
DEC 26 1975
BOSTON REDEVELOPMENT AUTHORITY
OFFICE OF THE DIRECTOR



Robert T. Kenney, Director (Continued)

Member agencies of MPO have participated in your South Station work thus far. Representatives of MBTA have in particular worked with you on the needs of commuter rail and buses and Red Line transit. The Massachusetts Department of Public Works has dealt with your connecting ramp, expressway and adjacent street proposals. Aspects of the project are included in the Unified Work Program reviewed by the Joint Regional Transportation Committee and have been monitored by our Central Transportation Planning Staff.

In summary, as I recognize what has transpired thus far, I look forward to a cooperative realization of a new Intermodal Terminal at South Station and support your effort to gain planning funds.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Frederic Salvucci". The signature is fluid and cursive, with the first name "Frederic" being more legible than the last name "Salvucci".

Frederic Salvucci
Secretary of Transportation and Construction

CC: R. Kiley
J. Carroll
R. Doherty
J. McCarthy
Mayor Kevin White
J. Wofford

Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300

DEC 24 1975

Mr. Frank Keefe, Director
Office of State Planning
One Ashburton Place
Boston, MA

Attention: Peter Schneider

Dear Mr. Keefe:

On December 12, I notified you of our intention to submit an application for funding of the South Station Project.

Enclosed is a copy of the final application for Planning and Preservation Funding Assistance for the South Station Intermodal Transportation Terminal. The application requests \$10 million in funds from the Federal Railroad Administration of the Department of Transportation.

As outlined in the Preliminary Application, these funds will be used to proceed with the preparation of final design and construction plans in 1976 and to carry out rehabilitation and preservation work on portions of the historic head house.

The total project under the unified funding program calls for a \$104.7 million project with funding from UMTA, FHWA, Urban Systems, Federal Railroad Administration, and the Boston Redevelopment Authority.

Because of the complexity of this development proposal, your staff may wish to discuss this application further with Joseph Berlandi, Director of Downtown Development.

Sincerely,

Robert T. Kenney
Director

Enclosure



Boston Redevelopment Authority

Robert T. Kenney / Director

City Hall
1 City Hall Square
Boston, Massachusetts 02201
Telephone (617) 722-4300

DEC 24 1975

Mr. Richard M. Doherty, Executive Director
Metropolitan Area Planning Council
44 School Street
Boston, MA 02108

Dear Mr. Doherty:

On December 12, I notified you of our intention to submit an application for funding of the South Station Project.

Enclosed is a copy of the final application for Planning and Preservation Funding Assistance for the South Station Intermodal Transportation Terminal. The application requests \$10 million in funds from the Federal Railroad Administration of the Department of Transportation.

As outlined in the Preliminary Application, these funds will be used to proceed with the preparation of final design and construction plans in 1976 and to carry out rehabilitation and preservation work on portions of the historic head house.

The total project under the unified funding program calls for a \$104.7 million project with funding from UMTA, FHWA, Urban Systems, Federal Railroad Administration, and the Boston Redevelopment Authority.

Because of the complexity of this development proposal, your staff may wish to discuss this application further with Joseph Berlandi, Director of Downtown Development.

Sincerely,

Robert T. Kenney
Director

Enclosure

NEAL MONTANUS, INC.

9 HUNTINGTON ROAD • PORT WASHINGTON • NEW YORK 11050 516-767-3181

February 20, 1976

Mr. Stewart Forbes
Boston Redevelopment Authority
City Hall
1 City Hall Plaza
Boston, Mass. 02201

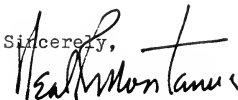
Dear Stewart:

Thank you for the materials on the South Station Intermodal Transportation Terminal. I look forward to discussing with you the areas in which I might be helpful in this matter.

Enclosed is a general summary of my background, to which there may be added certain details which have a relation to your project:

- participation in the planning for the Port Authority Bus Terminal in Manhattan;
- direction of the economic and physical planning, construction, and operation of many of the airport terminals in the New York Metropolitan Area;
- direction of the planning of the Journal Square Transportation Center in Jersey City, a bus/rail/auto intermodal facility;
- participation in FRA's "Study of the Alternatives for the Penn Station Complex"; and
- a familiarity with the transportation planning processes and objectives in Boston.

Sincerely,



Neal R. Montanus

NRM/cn
enclosure

NEAL MONTANUS, INC.

9 HUNTINGTON ROAD • PORT WASHINGTON • NEW YORK 11050 516-767-3181

NEAL R. MONTANUS

Principal Areas of Experience

Served with The Port Authority of New York and New Jersey from 1947 to 1974. (From 1957 to 1959, on leave of absence, served as a senior foreign service officer for the U.S. Department of State on special assignment in Europe.) Resigned from the Port Authority to extend activities in the transportation field.

Urban mass transportation experience:

1. Vice President/General Manager of The Port Authority Trans-Hudson Corporation (the former Hudson & Manhattan Railroad), a rail rapid transit system linking the New Jersey and New York sectors of the New York Metropolitan Area. As executive in charge, developed and managed a program which changed this decrepit railroad into a modern commuter facility and extended its areas of service.
2. Executive in charge of the project to extend rail service from Manhattan to John F. Kennedy International Airport.
3. Executive in charge of projects to provide future internal mass transportation systems ("people movers") at John F. Kennedy International Airport and Newark International Airport.
4. Manager, Railroad Equipment Office of the Port Authority. Developed and administered a unique program to finance, design, and lease new multiple-unit passenger cars for use by three major commuter railroads.

Aviation experience:

5. Deputy Director and Director of Aviation of the Port Authority, with general responsibility for meeting the total civil aviation needs of the New York Metropolitan Area and specific responsibility for planning, development, operations, and financial results of John F. Kennedy International, LaGuardia, Newark International, and Teterboro Airports. Directed a staff of 1800 and controlled expenditures of some \$200 million annually. Worked extensively with the Federal Aviation Administration on technical and operating matters and determined policy positions to take before the Civil Aeronautics Board. Directed and participated in unique social programs, including development of opportunities for minority employment and entrepreneurship in civil aviation and for understanding the environmental effects of aviation activities.

Representative Papers and Presentations

- "Rebuilding a Transit System", American Transit Association Annual Meeting, New York, 1965
- "General Aviation Problems", World Airports Conference, London, 1969
- "Tomorrow's Airports Viewed from Acute Urbanization", Asahi Shimbun Forum, Tokyo, 1970
- "Greater Utilization of Today's Airports", Anglo-American Aeronautical Conference, Calgary, 1971
- "STOL and VTOL Developments", Western European Airports Association Conference, Zurich, 1972
- "Airport Planning and Operations", Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, 1972-1973

Associations

- American Institute of Aeronautics and Astronautics (Member)
- Council for Airport Opportunity (former Member of Executive Committee)
- Airport Operators Council International (former Director)
- Aviation Management Institute, C.W. Post College (former Director)
- Bay Area Rapid Transit District Advisory Committee, (former Member)
- Ship's Operational Safety, Inc. (former Director)
- The Wings Club (Member, Board of Governors)
- Aviation Development Council (former Member of Executive Committee)

Personal

- Born 1926, Brooklyn, N.Y.
- U.S. Navy, 1943-1946
- Colgate University, A.B. in Political Science (with Honors), 1947

Current Activity

President, NEAL MONTANUS, INC., a service established to assist government and industry in problems of civil aviation and urban mass transportation.

4003

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So. Station B65R F

333. Final application for
planning and preservation
funding for So. Station
Intermodal Transportation
Terminal. R F
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